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Is kitáb men jo báten likhi gai hain wuh baráh-i-rást ya kisi zarie se akhbár wálon ko ya kisi aise shakhs ko hargiz na batái jáen jo sarkári mulázim ki haisiyat se inke jánne ka haq na rakhta ho.

G. S./50801/M. T. 2.

ROMAN URDU

SMALL ARMS TRAINING

Volume I, Pamphlet No. 7.

·303-inch Vickers Machine Gun

PART III (INDIA)

Fire Control Support Platoon 1940

(A translation of Small Arms Training, Volume I, Pamphlet No. 7, ·303-inch Vickers Machine Gun, Part III (India) Fire Control Support Platoon, 1940, together with Amendment No. 1 of 1941.)

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MAZMUNON KI FIHRIST.

Safha.

Safha

TAMHID.

Yih *pamphlet machine gun* ka *fire* dálne ke mukhtalif tariqon se taalluq rakhta hai.

Yih un *officer*on aur uhdadáron ke wáste likha gaya hai jin ka kám *fire* ko *direct* aur *control* karna hai. Is ko parhne se pahle wuh in usulon se achchhi tarah wáqif hon :—

1. *The Theory of Small Arms Fire* (*Small Arms fire* ke usul) . . . . (Roman Urdu *S. A. T.*, *Vol.* I, *Pamphlet No.* 1).
2. *The Application of Fire* . (Roman Urdu *S. A. T.*, *Vol.* I, *Pamphlet No.* 2).

Agar parhne wále ko mamuli sa hisáb áta ho to wuh *fire control* ke mukhtalif tariqon ko bagair mushkil ke samajh lega.

TARIFEN.

Line of Fire.—*Gun* se *target* ka rukh.

Flanking Fire.—Wuh *fire* jo kisi *position* se apni us fauj ke *flank* ki taraf se kia jáe, jis ko *cover* karna ya madad dena ho. (Dekho Taswir III, Safha 43).

Overhead Fire.—Aisa *fire* jo apni fauj ke sir ke upar se guzre. (Dekho Shakl 16 aur 17, Safha 45).

Clearance.—Zamin ke kisi *point* se *cone* ki *centre* wáli goli tak ki khari unchái. (Dekho Sabaq 67, *para* 2).

Minimum Clearance.—Apni fauj ke sir se *cone* ki bich wáli goli tak ki wuh kam se kam unchái jis se fauj mahfuz rahe. (Dekho Sabaq 67, *para* 2).

Fixed Line.—*Fixed line* par kisi hathyár ko *lay* karna usko kahte hain jab kih wuh is tarah se *lay* kia jáe kih uska *fire* pahle se malum kie hue iláqe par dála ja sake, cháhe andhera ho ya dhund. *Fixed line* par *fire* karna bacháo ke lie andhere ya dhund men sab se achchha tariqa hai. (Dekho Taswir III, Safha 43).

Angle of Sight.—Wuh *angle* jokih *line of sight* aur pari satah ke darmiyán banta hai. Jab *gun position* se dekhte hue *target* pari satah se upar ho to yih *angle* musbat ya *positive* (+) kahláta hai, aur jab *target* niche ho to manfi ya *negative* (—). (Dekho Sabaq 57, Safha 5, 6, 7 aur 8).

Tangent Angle.—Wuh *angle* jokih *axis of barrel* aur *line of sight* ke darmiyán banta hai. (Dekho Sabaq 57, Safha 5, 6, 7 aur 8).

Quadrant Angle.—Wuh *angle* jokih *axis of barrel* aur pari satah ke darmiyán banta hai. (Dekho Sabaq 57, Safha 5, 6, 7 aur 8).

Safety Angle—flanking fire ke lie.—Wuh chhote se chhota bagali *angle* jis se *line of fire* apni fauj se alag ho—is bát ka yaqin karne ke lie kih fauj ki hifázat ho. (Dekho Taswir III, Safha 43).

Safety Angle—overhead fire ke lie.—Wuh chhote se chhota *angle* jo kih *axis of barrel* aur apni fauj ki *line of sight* ke darmiyán bane, tákih aisi hálat men fauj ki hifázat ka yaqin ho jab kih *fire* uske sir ke upar se kia jáe. (Dekho Shakl 18, Safha 46).

Section 19—ÁM USUL.

1. *Fire control* ka maqsad.—*Fire* ka asli maqsad hai dushman ki harakaton ko rokna ya uske *fire* ko dabána aur apni faujon ki harakat ko madad dena. Is matlab ko hal karne ke lie ek ya ziáda *fire uniton* ka *commander* apne hathyáron se jahán wuh cháhe *fire* dálne ke qábil hona cháhie. Yih hai *fire control.*

2. Bunyádi usul.—Wuh bunyádi usul jo kih *Support Platoon* ke *sectionon* ke *fire* karne ke lie hain, yih hain :—

(i) Asar.—Pure *target* ko ziáda se ziáda kárgar tariqe par márna cháhie.

(ii) Hifázat.—Apni faujon ki hifázat ka khás khayál rakha jáe.

(iii) Achanak kárrawái.—Jitni jaldi ho sake *target* ko *fire* kholne ke bád márna cháhie, nahin to wuh bát nahin hásil hogi jo achának kárrawái karne se hásil hoti hai.

(iv) *Ammunition* ki kam-kharchi.—*Ammunition* ka pahunchána hamesha mushkil hota hai. Batáe hue kám ko pura karne ke lie zarurat se ziáda *ammunition* kharch karna galati hai.

(v) Galati ki muáfi.—Golion ke lagne ki jagah ko dekhna aur is tarah *beaten zone* ki *position* ka thik thik andáza lagána aksar mushkil aur kabhi kabhi ná-mumkin hota hai, is lie *fire* ki dekh-bhál karke aur *correction* dekar *target* ko márna hamesha mumkin nahin hota.

Chunkih sahih fásila malum karne ke lie koi aisa zaria nahin hai jo bharose ke qábil ho aur jaldi se kám de sake, aur na mausim ke hálát ko thik thik jáncha ja sakta hai, is lie simt aur *elevation* donon men galati paida ho játi hai.

Is lie *fire control* ke qáidon men is galati ki muáfi ka liház rakhna zaruri hai. Jabkih golion ki már káfi dikhái na de to *target* ke iláqe men *fire* kia jáega, bajáe iske kih asl *target* par *fire* kia jáe.

Fire control order in usulon ka liház rakhte hue banáe jáen. Yih *order* (hukm) sáf, thik, aur sáde hone cháhien.

3. *Fire control* ka tariqa áge ke safhon men is tarah se likha gaya hai kih wuh upar ke usulon ke mutábiq hai. Yih tariqa atal nahin hai balkih is men zarurat ke mutábiq tabdili ki ja sakti hai. Jis jagah par hálát in qáidon ke mánne ke lie ijázat na den, wahán aql aur liáqat se kám lekar *target* par kárgar *fire* dála jáe.

Jab *beaten zone* ka phailáo dekhbhál se thik thik malum kia ja sake to záhir hai kih *fire control* ke tariqe men káfi tabdili ki ja sakti hai, yane *observation* aur *correction* se *fire* kia ja sakta hai. (Dekho *Section* 16 aur Sabaq 50 aur 51).

4. *Direct fire* aur *indirect fire*.

(i) Ám taur par *target* ko *direct fire* se mára játa hai, yane *sighton* ke zarie se *target* par *lay* kia játa hai. Is ke bare bare fáide yih hain :—

Yih chauri *arc* men niháyat ásáni se *target* márne ka ála tariqa hai.

Is tariqe se *fire* ásáni aur jaldi se kia ja sakta hai. Iske nuqsán yih hain :—

(a) Ám taur par *No.* 1 ke *lay* karne men galati hona.

(b) *Target* ke bayán aur pahchán men mushkilen.

(c) Mumkin hai kih dikhái dene wála iláqa andhera ya dhund wála ho jáe.

(ii) *Indirect fire* us waqt kia játa hai jab kih *direct fire position* mil na sake ya iska ikhtiyár karna munásib na ho. Iske bare bare fáide yih hain :—

Targeton ke bayán ki zarurat nahin rahti.

Gun álon ke zarie se *lay* ki játi hai. Iski durusti par raushni aur fásile ka asar nahin parta.

Iske nuqsán yih hain :—

Ziáda hisáb kitáb ki zarurat hoti hai.

Golion ke ráste men *crest* ka hisáb karna parta hai.

Direct fire ke muqábale men iska *drill* kuchh ziáda hota hai, *action* men áne ke lie waqt ziáda cháhie.

(iii) Mumkin hai kih larái men *fire* ka iláqa banáwati ya qudrati tariqe se chhup jáe. Is lie jab *direct fire position* li hui ho to jitni jaldi ho sake *indirect fire* ka bandobast karna cháhie. (Dekho *Section* 13, Sabaq 42).

(iv) *Fire control* ke tariqe jo is *pamphlet* men die gae hain, *direct* aur *indirect fire* donon ke lie lágu hain. Lekin chunkih *fire discipline* donon men hamesha ek hi nahin hota is lie *Part* III ke báqi hisse men *direct* aur *indirect fire* ka bayán alag alag dia gaya hai.

SABAQ 57.—*ELEVATION*.

Instructor ke lie *note*.

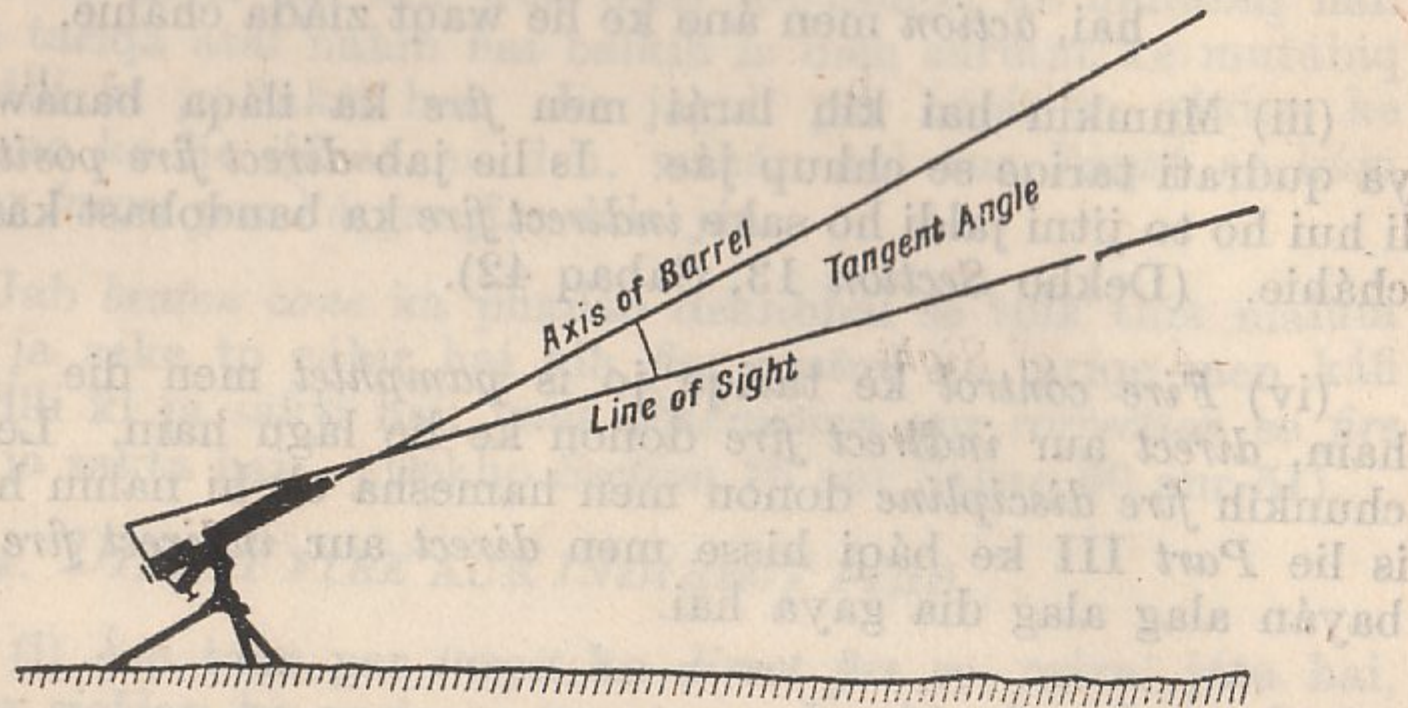
Zaruri sàmàn :—

Gun, tripod, range-table, black-board.

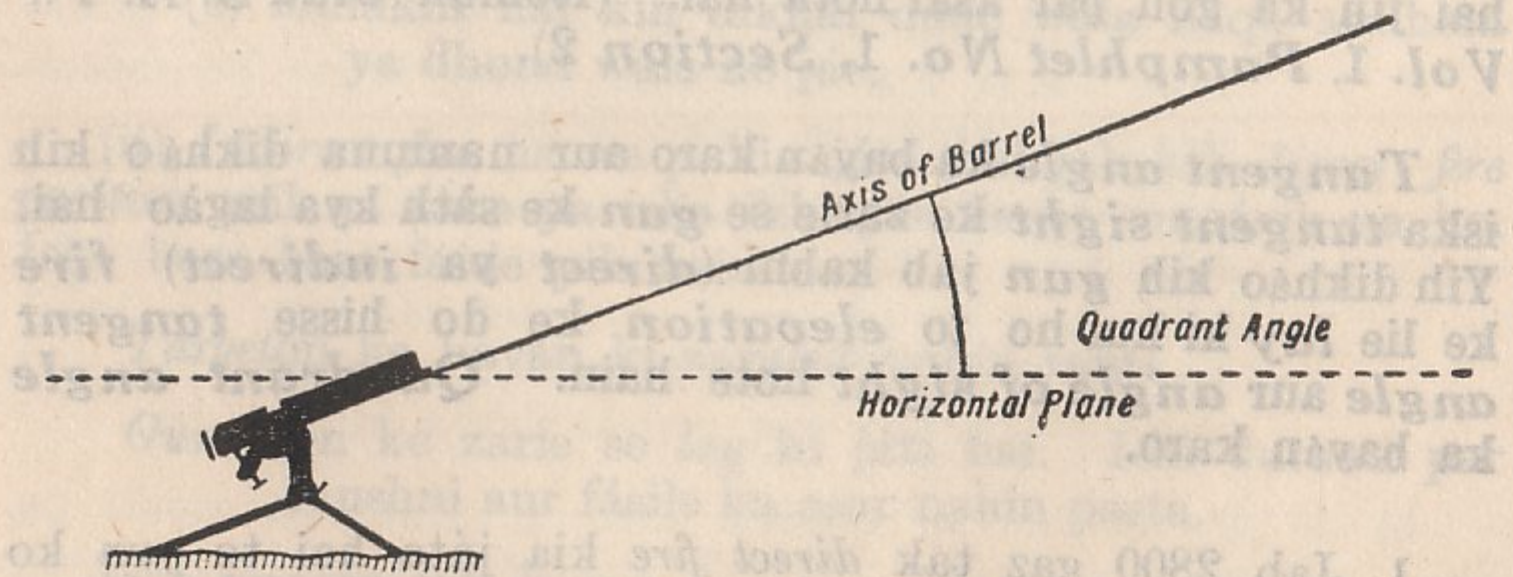
Pahle yaqin kar lo kih ***class*** un táqaton ko samajhti hai jin ka goli par asar hota hai. (Roman Urdu *S. A. T.*, ***Vol.*** I, ***Pamphlet No.*** 1, ***Section*** 2).

Tangent angle ka bayán karo aur namuna dikháo kih iska ***tangent sight*** ke zarie se ***gun*** ke sàth kya lagào hai. Yih dikháo kih ***gun*** jab kabhi (***direct*** ya ***indirect***) ***fire*** ke lie ***lay*** ki hui ho to ***elevation*** ke do hisse ***tangent angle*** aur ***angle of sight*** hote hain. ***Quadrant angle*** ka bayán karo.

1. Jab 2800 gaz tak *direct fire* kia játa hai to *gun* ko *elevation* is tarah se dia játa hai kih *target* ka fásila *auxiliary back sight* ya *gun sight* par *sightor* ko lagáya játa hai, *line of sight* shist ki jagah ki sidh men rakhi játi hai. Yih tariqa

axis of the barrel ko *line of sight* ke upar ek *angle* par rakhta hai. (Shakl 1). Yih us *range* ke *elevation* ka *tangent angle*

SHAKL 1.

hai, jis par kih *sight* ko lagáya gaya hai.* Tamám *range*on ke *tangent angle* malum kie gae hain aur *range table* par likhe gae hain.

2. Jab *indirect fire* kia játa hai to *clinometer* ke zarie se *gun* par *elevation* aur *depression* lagáya játa hai. Yih aisa ála hai jo pari satah se *angle* nápta hai. Is lie zaruri hai kih *gun* ko pari satah ke liház se jo *angle* dia gaya hai uska bayán ho sake. Is *angle* ko *Quadrant Angle* kahte hain. Yih *axis of the barrel* aur pari satah ke sáth banta hai.

SHAKL 2.

Horizontal Plane=Pari satah.

* Siwáe aisi jaghon ke jahán *line of sight* bilkul sidhi khari ho yane pahári iláqon men. Sabaq 59 men iska bayán kia gaya hai.

Quadrant angle nikálne ka yih tariqa hai :—

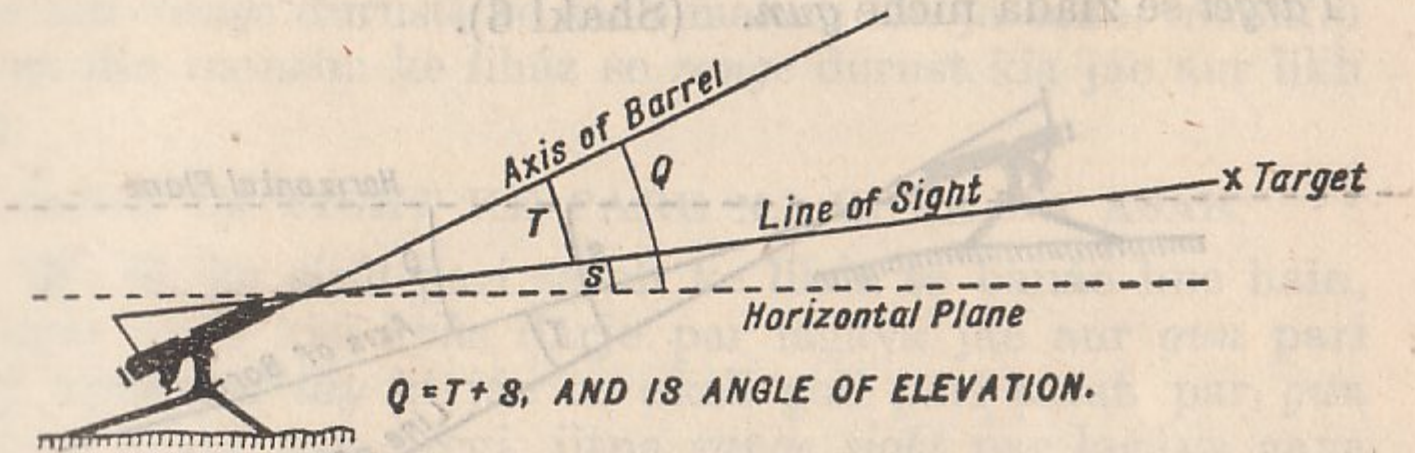
QA=TA±AS. (*Angle of sight* ke lie dekho Tarifen Safha 2).

Niche ki shaklen har ek tariqe ko záhir karti hain kih kaise hisáb lagáya játa hai :—

Q=*Quadrant Angle.*

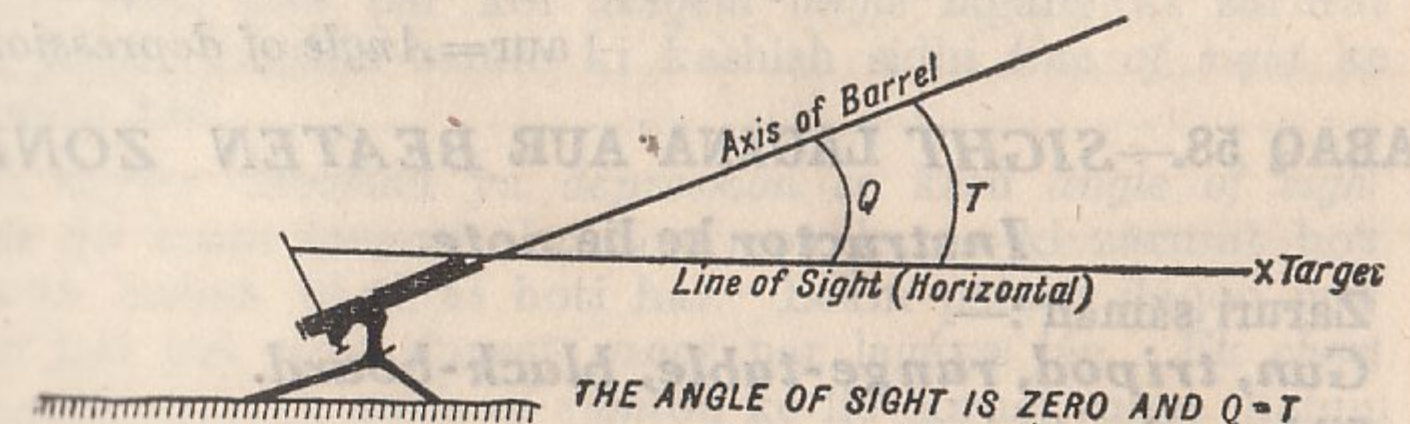
T=*Tangent Angle.*

S=*Angle of Sight.*

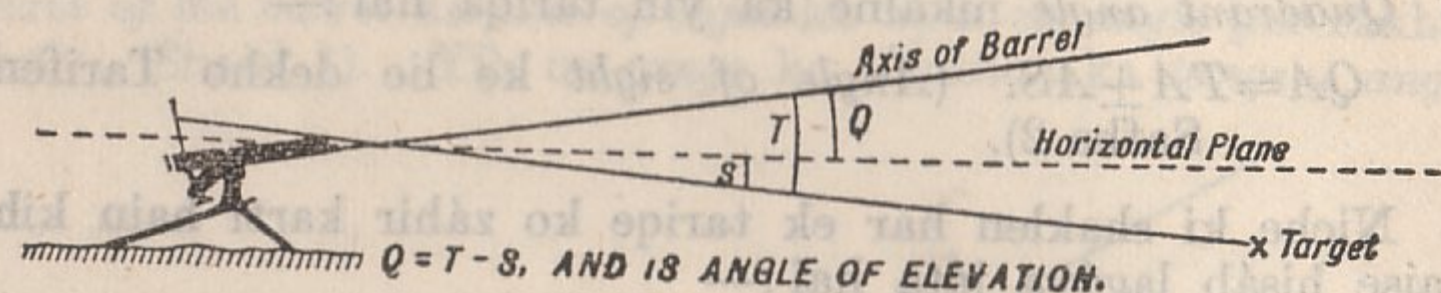
Target se upar *gun* (Shakl 3).

SHAKL 3.

Horizontal Plane=Pari satah.

Q=T+S and is angle of elevation yane Q=T+S aur =*Angle of Elevation.*

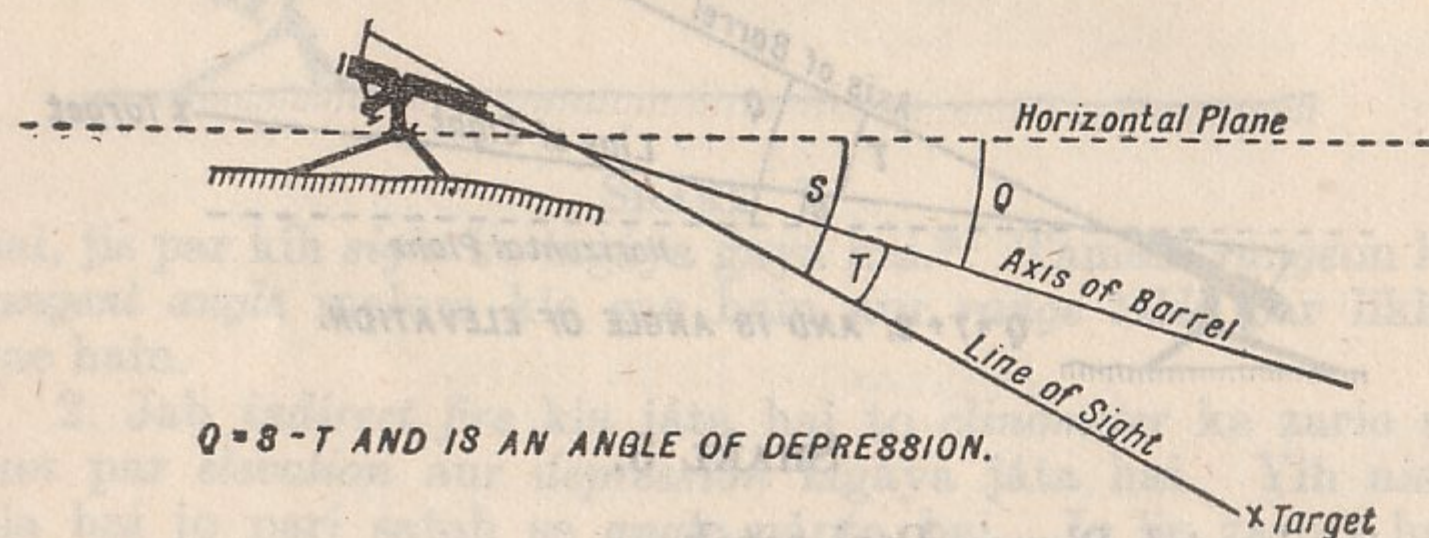
Target ke barábar *gun* (Shakl 4).

SHAKL 4.

The angle of sight is Zero and Q=T yane *the angle of sight zero* hai aur *Q=T.*

Target se niche gun (Shakl 5).

SHAKL 5.

Horizontal Plane=Pari satah.

Q=T—S, and is angle of elevation yane *Q=T—S* aur=*angle of elevation.*

Target se ziáda niche *gun*. (Shakl 6).

SHAKL 6.

Horizontal plane=Pari satah.

Q=S—T, and is an angle of depression yane *Q=S—T* aur=*Angle of depression.*

SABAQ 58.—*SIGHT* LAGANA AUR *BEATEN ZONE*

***Instructor* ke lie *note*.**

Zaruri sámán :—

Gun, tripod, range-table, black-board.

Sikháne ka tariqa :—

Mamuli *line of sight* (yane taqriban pari *line of sight*) aur gair-mamuli *line of sight* ka bayán *range table* ke *chart* aur niche ke *para* 2 ki madad se karo.

***Beaten zone* ka bayán karo aur zamin ki banáwat ka is par asar batáo.**

BAYÁN.

1. *MACHINE GUN*ON KE *SIGHT* THIK KARNA.

Dusre chhote hathyáron ki tarah har ek *range* ke lie ausat darjabandi malum karke *sight*on par nishán lagáe gae hain. *Issue* karne se pahle *gun*en durusti ke lie *test* ki játi hain. Jun jun *gun*en istemál ki játi hain, *mounting*on aur *barrel*on ke ghisáo aur dusri kharábion ki wajah se kisi khás *range* ke lie *sight*on ko lagáte waqt sháyad har ek *gun* ke wáste alag alag *correction* ki zarurat hogi.

Tamám mauqon par jab *gun* se pakka *ammunition fire* kia jáe aur *range* durusti ke sáth malum kia ja sake, mumkin ho to us din mausim ke liház se *range* durust kia jáe aur likh lia jáe.

2. *LINE OF SIGHT* KE PARE NA HONE KA ASAR.

V. M. G. ke *sight* pari satah ke liház se banáe hue hain, yane agar *sight* kisi khás darje par lagáya jáe aur *gun* pari *line of sight* par *lay* ki jáe to akeli goli pari satah par, *gun* se áge us *range* par giregi, jitna *range sight* par lagáya gaya ho.

Angle of sight jitna ghatta ya barhta hai goli ko utna hi fásila tai karne ke lie utne hi kam *tangent elevation* ki zarurat hoti hai, kionkih zamin ki kashish aisi *line of sight* se *right angle* par nahin hoti. Iska samajhna sháyad aur bhi ásán hoga agar *fire* sidha upar ya niche kia jáe. In suraton men *gun* par koi *tangent angle* lagáne ki zarurat nahin hogi, kionkih zamin ki kashish sidhi *line of sight* ke sáth sáth hai.

10 *degree elevation* ya *depression* se kam *angle of sight* ke lie jo kami *tangent elevation* men karne ki zarurat hoti hai wuh bahut hi thori hoti hai. Lekin pahári iláqon men zaruri hai kih *sight* durust *range* par lagáya jáe. Ek *chart* jis se gair-mamuli *angle of sight*on ke lie durust *range* malum kie ja sakte hain, *range table* (Safha 16) men dia gaya hai.

3. *BEATEN ZONE*.

V. M. G. ka *beaten zone* usi tarah ka hota hai jaisa kih *rifle* ka ikatthe *fire* men. Jab *fixed mounting* istemál kia

jáe to *fire* men ziáda durusti hoti hai aur *group* káfi chhota hota hai. Mukhtalif *range*on par *beaten zone*on ki lambái chaurái tajriba karke malum ki gai hai aur *range table* men likhi gai hai.

Is *pamphlet* men jo qáide likhe gae hain unki bunyád *beaten zone*on ki isi lambái chaurái par rakhi gai hai. Yih lambái chaurái mukhtalif *gun*on aur *tripod*on se kám lete waqt bahut kam ghatti barhti hai; is lie har ek *range* ke lie barábar samjhi gai hai.

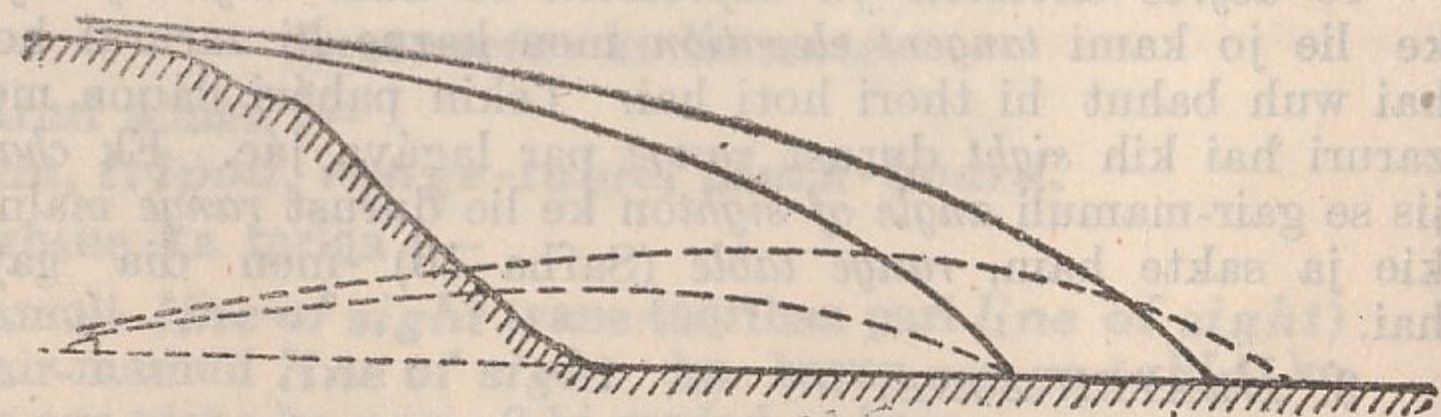
Jun jun *range* barhta hai, *beaten zone* ki lambái ghatti hai. 2,000× ke upar *beaten zone* ki lambái phir barhni shuru ho játi hai. Yih har ek goli ki táqat men thora bahut farq hone ki wajah se hota hai.

Iski chaurái *range* ke sáth sáth ákhir tak barhti játi hai.

Chunkih iski chaurái, lambái ki nisbat bahut kam hoti hai, is lie *direction* men durusti rakhne ki ziáda zarurat hoti hai, aur is sabab se *target*on ko *enfilade* (*flank*) ki taraf se márna bahut mufid hota hai.

Light machine gun ke *beaten zone* par zamin ki banáwat ka asar qarib qarib wuhi hota hai jo Roman Urdu *Pamphlet No.* 1, *Section* 2 men likha hua hai.

Iske aláwa, yih yád rakhna cháhie kih agar unchi jagah se hamwár zamin par *fire* kia jáe to *beaten zone* chhota ho játa hai. (Dekho Shakl 7).

Range table ke Safha 7 par ek *table* dia gaya hai jis se pata chalta hai kih *beaten zone* jis zamin par parta hai, uski dhalán ke mutábiq kitna ghatta barhta hai.

SHAKL 7.

Beaten zone ki lambái chaurái mukhtalif *range*on par káfi tabdil ho játi hai. *Fire* ke *burst* itne lambe hone cháhien kih *beaten zone* ki *position* mil sake aur har ek *range* ke *target*-on par *fire* ka asar ho sake.

Niche die hue *fire* ke *burst* madad ke lie likhe gae hain aur har ek *fire* karne wále ko malum hone cháhien.

Gaz.	*Round.*
1500 tak	Taqriban 20 *round.*
1500 ke upar	Taqriban 40 *round.*
Har ek *range* par *rapid fire* . .	Taqriban 50 *round.*

SABAQ 59.—*RANGE-TABLE* AUR MAUSIMI HALAT KA ASAR.

***Instructor* ke lie *note*.**

Zaruri sámán :—

Range-table, black-board.

Sikháne ka tariqa :—*Table* ka har ek safha, dusre safhe par jáne se pahle achchhi tarah se batána aur samjhána cháhie. Niche *para* 2 men jis *table* ka zikr kia gaya hai, us ka is darje men bayán na kia jáe.

***Class* ko ásán misálen di jáengi tákih báqi tamám *table*on aur *scale*on men wuh is ko istemál karna achchhi tarah ján jáen.**

BAYÁN.

1. ·303-*inch Vickers* ka *range table* jo kih—

(a) 1937 ka hai; us men Safha 1 par ek *table* banáya gaya hai, jis par *gun* ke tamám qism ke *fire* darj hain.

(b) *Machine gun* ke *table* aur *graph* die gae hain.

2. Safha 2 aur 3 par *lift*, *safety angle*, *minimum clearance*, *temperature* aur *barometer* ki durustián di gai hain. Is *table* men har ek qism ki báten darj hain jin ki zarurat ám taur par *target* ko márne ya taiyári karne ke lie parti hai.

(a) Har ek *range* ka *tangent angle* (100's aur 50's).

(b) Apni faujon ka *safety angle* aur *minimum clearance* har ek *range* par. (*Overhead fire* ke sawál hal karne men madad dene ke lie).

(c) Aisa *angle* jis se kih har ek *elevation* barháne ki zarurat ho to *range* men $100^{\times}$ jama karo yane $100^{\times}$ ki *lift* de do.

(d) Mukhtalif *temperature* aur *barometer* ke lie nikála hua haq (Dekho niche *para* 8).

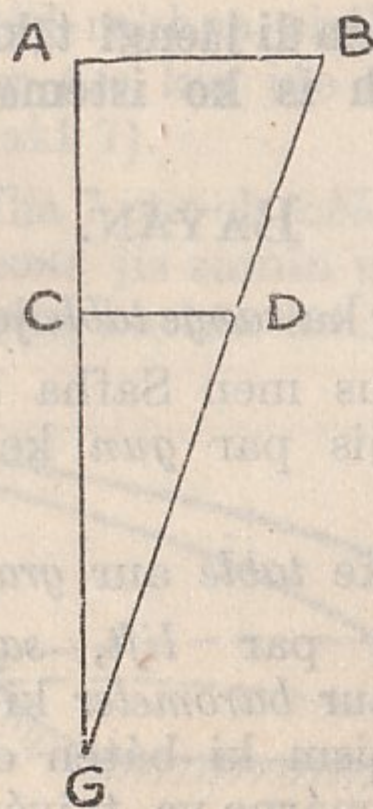
3. Safha 4—6.—Hawa ka haq.

4. Safha 12 aur 13 par ek VI *table* (istemál karne ke tariqe Safha 8 par dekho). VI *table* ke istemál mukhtalif hain. Sab se zaruri yih hain :—

(a) *Range* malum hote hue wuh *angle* malum karna jo kisi khás fásile ya unchái par banta hai.

(b) Kisi khás fásile ya unchái se *range* aur *angle* malum karna.

Shakl 8 men agar G *gun* hai aur GA *range* hai tab AB, AGB *angle* se aur GA *range* se fásila banta hai aur CO, AGB *angle* se aur GC, *range* se fásila banta hai. Isi tarah se LAGB banta hai AB aur CD, GA aur GC ke *range* se.

5. Safha 14.—Chalte hue *target*on ka *angle of sight* malum karna.

SHAKL 8.

6. Safha 15.—QA aur *clearance* ka hisáb karne ka *graph* (QA *graph*).

Yih *graph* is tarah se banta hai kih QA ke lie bich wáli goli ka rásta *scale* par malum karna parta hai. Yih 10 *minute* ke fásile par lakir hai jokih 3° *dep* se lekar 10°—10′ ko záhir karti hai.

Moti aur pari káli *line* jis par " O " likha hua hai, *gun position* se pari *line* záhir karti hai. Khari *line*on se *range* malum hota hai jo kih *graph* ke upar aur niche ki taraf *scale* men záhir kie gae hain, aur pari *line*en *gun position* se unchái ya nichái *metre*on men záhir karti hain, jaisa kih *graph* ke báin taraf záhir hai aur gaz *graph* ke dahni taraf hain. *Graph* ka sab se bara istemál *target*on ka QA kisi unchái par, cháhe wuh *gun position* se upar ho ya niche, malum karne ke lie hai.

Misál—*Target Range*—$1600^{\times}$.

Target ki unchái *gun lines* se upar=$35^{\times}$.

Graph par *target* ka nishán lagáo. Pahle khari *line* $1600^{\times}$ niche wále *scale* se lo. Ab dahni taraf se $35^{\times}$ wále *scale* se pari *line* par láo jokih bari moti káli *line* se upar hai. Us tirchhi *line* ko jo kih us nuqte ke nazdik se guzarti hai *note* karo :—

Ele. 3°—50′.

Yih zaruri QA hai.

Graph crest clearance ke lie aur apni fauj ki hifázat malum karne ke lie istemál kia játa hai. Is ko malum karne ke lie upar aur niche *scale* dia hua hai. Is *graph* ko is kám ke wáste istemál karne ke lie un mukhtalif *section*on men jo kih is ke sáth taalluq rakhte hain tafsil di gai hai.

7. Safha 16.—Pahári ke upar aur niche *fire* karne ke lie *chart*.

8. Mausimi hálát ka asar :—Niche chhote hathyáron ke *sight*on ke wáste ám hálaten likhi játi hain :—

Barometer ka dabáo 30 *inch* (satah samundar se).

Temperature 60°*F*.

Hawa band.

Pari *line of sight*.

(a) *Barometer* aur *temperature.*

Agar *barometer* 30″ se niche gir jáe to kisi fásile ke lie ám hálát men jis *elevation* ki zarurat hoti hai, us se kam *elevation* ki zarurat hogi, kionkih hawa halki hone ki wajah se goli par kam rukáwat dálegi. Yih malum hona cháhie kih *barometer* har 1,000 *foot* satah samundar se uncha hone par ek *inch* girta hai. Agar *barometer* 30″ se upar ho to ziáda *elevation* ki zarurat hogi, kionkih hawa bhári hogi. Garmi ke mausim men goli par kam rukáwat parti hai, kionkih *temperature* ziáda aur hawa halki hoti hai. Sardion men ziáda rukáwat parti hai kionkih *temperature* niche hota hai. Is lie pahli hálat men kam aur dusri hálat men ziáda *elevation* cháhie.

Barometer aur *temperature* ke lie *allowance* ám taur par thora hota hai, aur ám taur par sirf ziáda unchái par ya sakht garmi ya sardi men *fire* karte waqt is ka rakhna zaruri hota hai.

1″ *barometer* ke charhne aur utarne ka *allowance* aur 10° *temperature* ke girne aur charhne ke lie har ek *range* ke sámne *range table* ke Safha 2 aur 3 par *column* 7 aur 8 dekho. Yih *note* karna cháhie kih *barometer* ke girne aur *temperature* ke charhne ka *allowance* ghatáya játa hai aur *barometer* ke charhne aur *temperature* ke girne ka *allowance* jama kia játa hai.

(b) Hawa.

Hawa *line of fire* ke áge se pichhe ko chalti ho to *elevation* par us ka asar parta hai, lekin agar hawa bahut ziáda aur *range* lamba na ho to bahut thore *allowance* ki zarurat hogi.

Hawa agar *line of fire* ke dahne se báen ko chalti ho to *direction* men farq par játa hai, jis ka asar lambe fásilon par goli par parta hai.

Agar hawa *line of fire* ke tirchhe rukh se chalti ho to *elevation* aur *direction* donon men farq par játa hai.

Agarchih názuk mauqon par yih zaruri hoga kih *side wind* ke *allowance* ka andáza lagáya jáe, lekin bád men jab mauqa mile to *range table* ke *graph* se durust haq dekh lo.

Range table ke safha 4 par hawa ke zor ka asar jo jhande par hota hai, ek *table* ke zarie dikháya gaya hai. Is se hawa ka andáza lagáne men madad milti hai. Is ka andáza laga lene ke bád zaruri *allowance table* ke Safha 6 par milega. Is *table* par *line of fire* se *right angle* par aur 45°, $22\frac{1}{2}$° aur $67\frac{1}{2}$° par chalne wáli hawa ka *allowance* záhir kia gaya hai. Yih *note* karna cháhie kih $22\frac{1}{2}$° *right angle* ka $\frac{1}{4}$ hissa hai aur $67\frac{1}{2}$°= $\frac{3}{4}$ hissa hai.

Table ko istemál karne se pahle yih faisala karo kih hawa *line of fire* ke kis taraf se áti hai. Us ke bád us ka *allowance* parho.

Side wind ke *allowance* sab se qarib ke 15′ tak die jáen.

(c) *Barometer* aur *temperature* ke *reading* aur hawa ki táqat aur simt "*Meteor*" *wire* (tár) ke zarie malum ho sakti hai, jokih larái men *meteorological section* se din men kisi waqt milta hai.

Agar yih na mil sake to topkháne is ke mutaalliq khabar de sakte hain.

SABAQ 60.—*RANGE YA RANGES*

Instructor ke lie *note.*

Zaruri sámán :—

Sabaq 59 ke mutábiq.

BAYÁN.

1. *Elevation* men galatián parne ke sabab :—

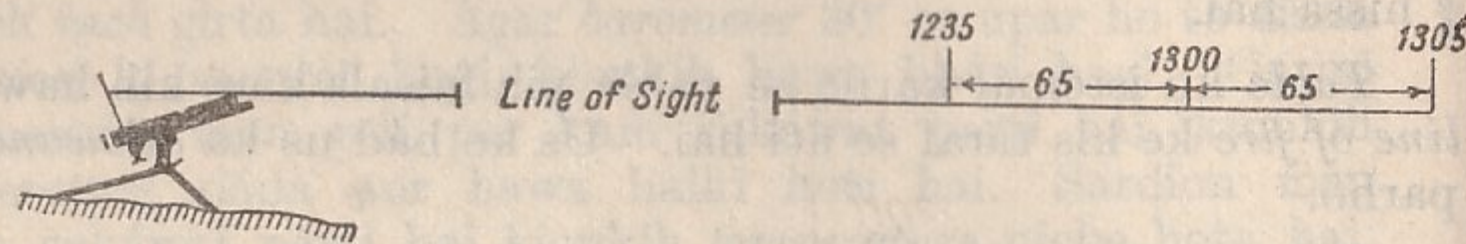
(a) *Range* ka faisala karne men galati.

(b) Mausimi hálát ke *allowance* men galatián.

2. Yih lázimi hai kih kám karne ke lie ádmion ko aisi sikhlái di jáe kih *range* ka andáza lagáne men un ki ziáda se ziáda galati niche ke mutábiq ho :—

	Fisadi.
(a) *Range finder* se	5
(b) Jáncha hua *range* jokih *range-taker* ke lie hue *rangeon* ki madad se ho . .	10
(c) Naqsha jokih 1/25,000 *scale* se kam na ho	5

Galatián donon taraf ho sakti hain yane puri galati durust *range* se pare ya ware ho sakti hai. Is lie *target* ek nuqta nahin mána ja sakta, balkih donon taraf ki galatián shámil karke *target* mána jáega.

Misál.—Ek nuqte ka fásila *range finder* se nápa hua 1300× hai.

SHAKL 9.

Is hálat men Shakl 9 men *target* 1235× se 1365× tak phaila hua mána jáega. Is lie jab *fire* khola jáe to is sáre fásile yane 130 gaz par golián márni cháhien.

3. Yih kaha ja sakta hai kih *beaten zone* ki bich wáli goli *line of sight* ko us *range* par kátti hai, jokih *tangent elevation* par laga hua hai. *Beaten zone* ka ádha hissa us *point* se pare aur ádha ware girta hai.

4. Is bát ka faisala karne ke lie kih *fire* kholne par *fire* ka asar *target* par hoga ya nahin, yih zaruri hai kih *beaten zone* ki lambái ka muqábala us *range* ki dugni *probable error* (ho sakne wáli galati) se kia jáe.

Misál:—

"A" (Shakl 10) *Range*=1300×

Donon taraf galati=65× (5 Fisadi *range* ka).

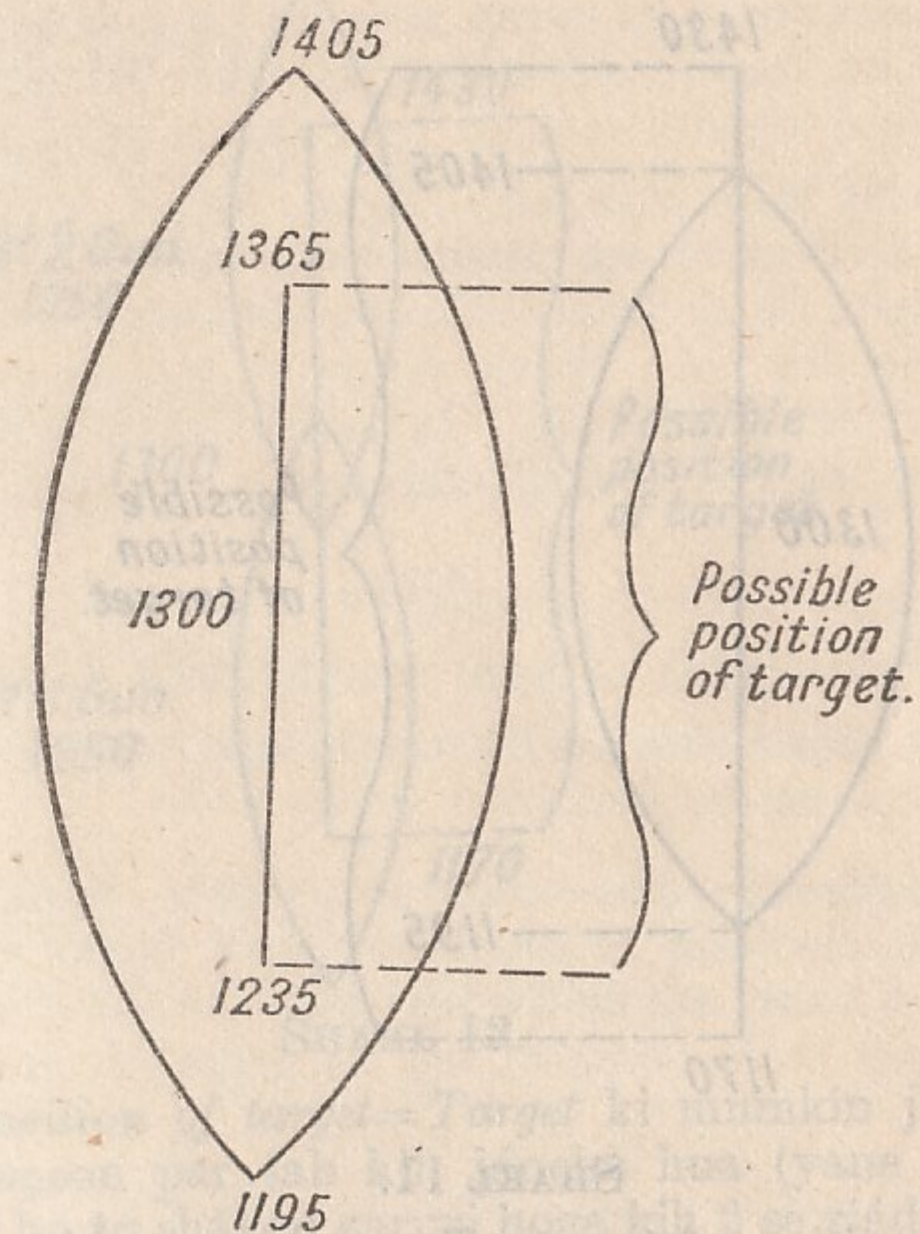
Beaten zone=210× (yane 105× har taraf).

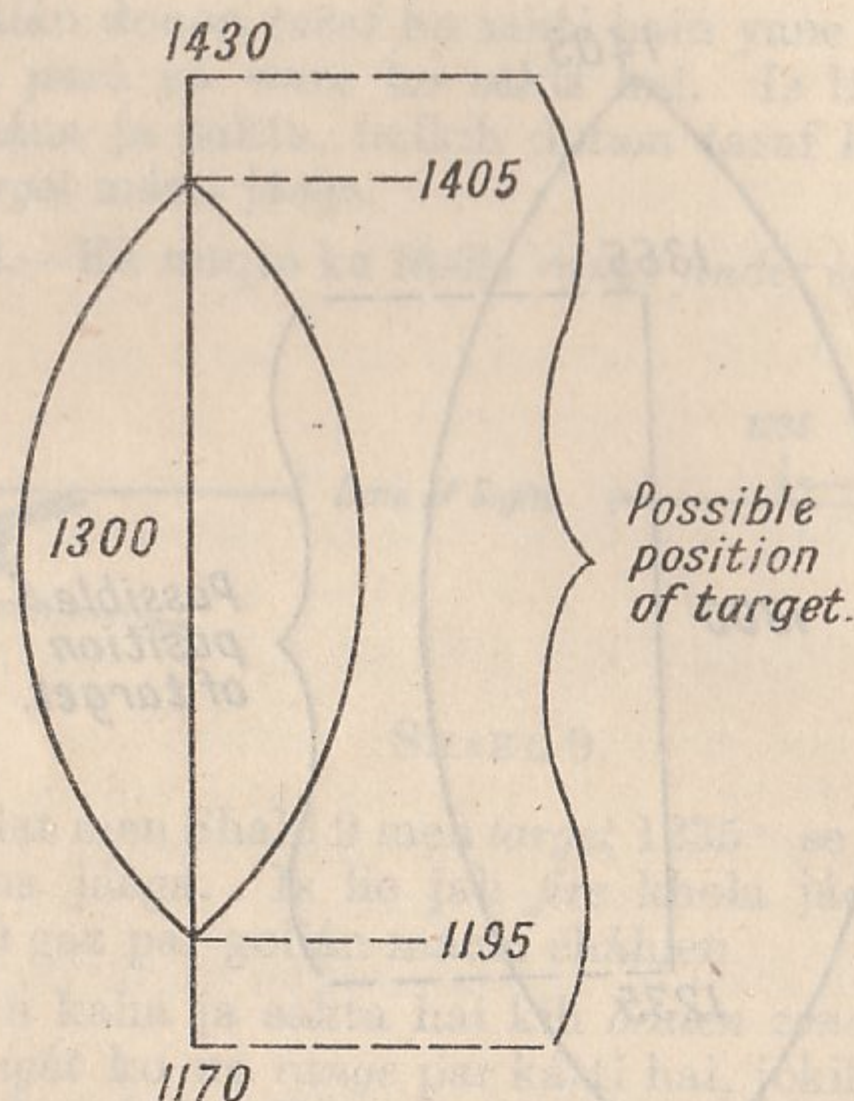
Is lie *beaten zone* ki lambái *probable error* ko *cover* karti hai, aur *fire* ka asar *fire unit* ki donon *gun*on ko usi shist ke nishán par wuhi *elevation* dekar jaldi se hásil ho sakta hai.

"B" (Shakl 11).

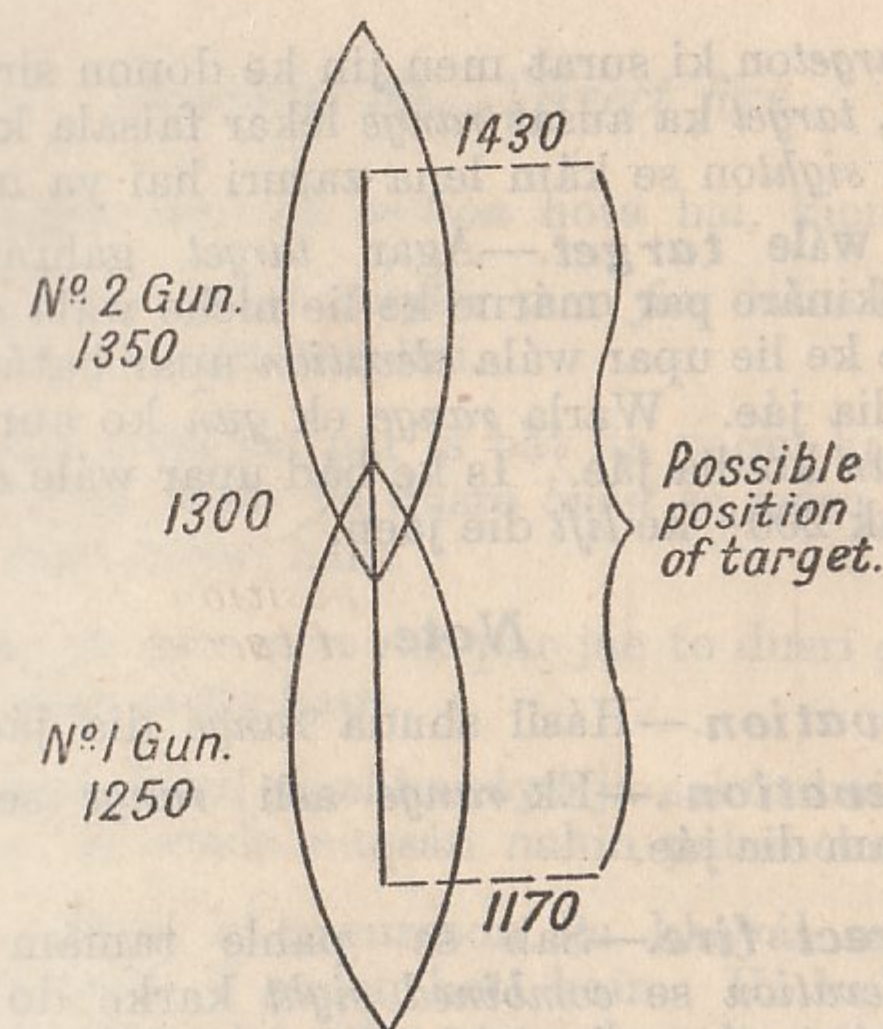
Range 1,300 gaz =(Jáncha hua).

Galati donon taraf =130 gaz (10 Fisadi *range* ka).

Beaten zone =210× (105× donon taraf).

SHAKL 10.

Possible position of target=*Target* ki mumkin jagah.

SHAKL 11.

Possible position of target=Target ki mumkin jagah.

Is wáste *target* ki gahrái ko márne ke lie *beaten zone* ki lambái barha di jáe. *Beaten zone* ki lambái káfi is tarah barh játi hai kih ek *gun* ko asli *range* se 50× kam aur dusri ko 50× ziáda *range* dia jáe. Donon *gun*on ko usi ek nishán par *lay* kia jáe. Is tarah se *beaten zone* ki lambái 100 gaz barh játi hai (Shakl 12). Is kárrawái ko " *combined sight*on se kám lena " kahte hain. *Combined sight* istemál karne se donon *beaten zone*on ka bich wála hissa ek dusre se 100× alag rahta hai. Yih shakl tamám *range*on ke lie *beaten zone*on ko ek dusre ke upar charháne ke lie di gai hai.

SHAKL 12.

Possible position of target=Target ki mumkin jagah.

Lambe *range*on par jab kih jáncha hua (yane *estimated*) *range* lia gaya ho to sháyad zaruri hoga kih 2 se ziáda *elevation* die jáen. Jab bhi mumkin ho *ammunition* aur waqt ke fuzul kharch se bachne ke lie *range taker range* hásil kare, tákih *fire unit commander target* ko sirf 2 *elevation*on se már sake.

5. **Qáidá.**—Is ke mutábiq yih zaruri nahin kih *range table* men die hue *beaten zone*on ke sáth *range* ki dugni *probable error* ka muqábala kia jáe. Alag alag *range*on ke lie *elevation* ki tadád ke qáide niche likhe hue *table* men dekho.

Combined sight ka qáida.

Range.	*Elevation* ki zaruri tadád.	
	5 *per cent* galati.	10 *per cent* galati.
1100 gaz tak (1100× shámil hai) . .	Ek.	Ek.
1100 gaz se upar aur 1500 gaz tak (1500× shámil hai).	Ek.	Do.
1500 gaz ke upar	Do.	Chár.

Tirchhe *target*on ki surat men jin ke donon siron ka *range* mukhtalif ho, *target* ka ausat *range* lekar faisala kia jáega kih áya *combined sight*on se kám lena zaruri hai ya nahin.

6. **Gahrái wále *target*.**—Agar *target* gahrái wála ho to nazdik ke kináre par márne ke lie niche wála *elevation* aur dur ke kináre ke lie upar wála *elevation* upar batáe hue tariqe ke mutábiq dia jáe. Warla *range* ek *gun* ko aur us se 100× ziáda dusri *gun* ko dia jáe. Is ke bád upar wále *elevation* par pahunchne tak 200× ke *lift* die jáen.

Note.

(i) **Ek *elevation*.**—Hásil shuda *range* dia jáe.

(ii) **Do *elevation*.**—Ek *range* asli *range* se 50× ziáda aur ek 50× kam dia jáe.

(iii) ***Indirect fire*.**—Sab se pahle tamám *gun*on ko niche wále *elevation* se *combined sight* karke do (yane 50× asl *range* se kam) aur us ke bád 100× ke *lift* die játe hain jab tak kih upar wále *elevation* tak na pahunch jáen.

Section 20—Direct fire.

1. *Direct fire unit* ek *section* hota hai, kionkih :—

(a) *M. G.* se zaruri miqdár men *fire* dálne ke lie 2 *gun*on ki zarurat hoti hai.

(b) Lambe *range*on par is bát ka yaqin karne ke lie kih *target* pahle ya dusre *burst* se mára jáe, do *gun*en honi zaruri hain.

(c) Agar ek *gun* men rok par jáe to dusri *gun* se *fire* jári rakh sakte hain.

(d) *Section* ásáni se chhupáya ja sakta hai aur dushman is ko ziáda nuqsán nahin pahuncha sakta.

2. *Fire control* ki zaruraton ka khayál rakhte hue *fire controller* ke niche 2 *gun*en hoti hain. Us ke sáth ek *range taker* hota hai, jo kih us ko *range* dene ke qábil ho.

3. *Casualty*on se bachne ke lie do *gun*en *action* men ek dusre se itne fásile par hon jitna kih mumkin ho. Is bát ka khayál rakha jáe kih *fire controller* donon *gun*on par áwáz se *control* rakh sake.

4. *Para* 1 ke silsile men ek bát yád rakhni cháhie. 1,500 gaz se upar ke fásilon par is bát ka yaqin nahin hoga kih *section* ko *fire* ka asar *ammunition* ke kharch ke mutábiq hoga. Aisi surat men do ya do se ziáda *section*on ka *fire* us *target* par dála ja sakta hai.

SABAQ 61.—*FIRE ORDERS—DIRECT.*

Instructor **ke lie** ***note.***

Zaruri sámán—

Do *gun*en, ***tripod, 2 director, range-table, slide rule, landscape target, black board.***

Yih sabaq kamre ke andar *black board* par aur *landscape target* se kám lete hue ek *lecture* ke taur par dia jáe.

1. BAYÁN KARO KIH *TARGET* ko ek *direct fire unit* niche likhe hue tariqe se márta hai :—

(a) *Fire controller fire order* ke zarie se ek *elevation* deta hai aur har ek *gun* ko *lay* karne ki jagah batáta hai.

(b) Har ek *fire* karne wála dia hua *elevation* apne *sight* par lagáta hai aur *gun* ko *traverse* karke aur *elevating wheel* se kám lete hue *line of sight* bayán kie hue nishán par miláta hai. Is tarah se *gun* shuru men *elevation* aur *direction* par *lay* ho játi hai.

2. *Fire order* niche likhe hue *para* 3 ki tartib se die játe hain. Is tartib ko kabhi chhorna nahin cháhie.

Pakke taur se is tartib par chalne se galation aur bhulon ke jaldi se pakre jáne ka yaqin hota hai. Jawánon ko malum ho játa hai kih kya kám hone wála hai. Wuh jaldi se kám karte hain.

Hukm sáf sáf dena cháhie. *Fire controller gun*on ki taraf munh kare aur itna uncha hukm de kih donon *gun*on ko sunái de.

Hukm dene se pahle use apne dil men tai kar lena cháhie kih kya hukm die jáen. Hukmon ke bád ke hisse ka faisala karne ke lie gair zaruri aur lambe waqfe dena sirf galation aur sust *drill* ka báis hoga.

Hukm sunne wálon ko hukm ka dusra hissa dene se pahle itna waqfa dia jáe kih wuh pahle hisse par amal kar saken.

3. *DIRECT FIRE ORDER* KI TARTIB YIH HAI :—

(a) *Range* ya *ranges*.
(b) *Target* ka bayán.
(c) *Fire* ka tariqa.
(d) Pahlu ki hawa (agar zarurat ho).
(e) *Fire* ki raftár (agar zarurat ho).
(f) *Fire* karne ka hukm.

Fire order dete waqt waqfa niche ke mutábiq dia jáe, jab tak kih *gun number* hukm ke bád ke hisse ko sunne ke wáste taiyár nahin ho játe.

Range ke bád *sight* lagáne ke lie waqt do.

Bayán ke daurán men mukhtalif darjon men .	Nishán pahchánne ke lie, jab *degree*on ke zarie bayán kia jáe, *angle* nápne ke lie waqfa dia jáe.
Fire ke tariqe ke bád . . .	*Gun*on ko *lay* kar saken.
Hawa ke bád (agar hai) . . .	Shist lagáne ka dusra *point* pakar lene ke lie waqfa dia jáe.

4. *RANGE* YA *RANGES* :—

(a) *Range* jab *gun*on ko die jáen to sab se nazdik wále 50 gaz se die jáen aur niche likhi hui misálon ke taur par hon.

700	Sát sau.
1000	Das sau.
1400	Chaudah sau.
1450	Chaudah pachás.
2000	Bis sau.
2300	Teis sau.
2350	Teis pachás.

(b) Pahle *target* ka *range, Section Commander* ám taur par *range taker* se lega lekin jahán hálát ijázat den use *range* ka andáza lagáne se hichkichána nahin cháhie. Bád ke *target*on ke wáste waqt bacháne ke lie *range card* se *range* lie játe hain ya andáza lagáya játa hai.

(c) Donon *gun*on ko ek *range* ya har ek *gun* ko alag alag *range* dia jáega. *Combined sight* ke liház se hoga (Sabaq 60). Agar donon *gun*on ko ek hi *range* dena ho to lafz " *All* " ke zarie se *range* dia jáe (yane " *All* " das sau).

Agar do *elevation*on ki zarurat ho to wuh is tarah die jáenge :—

No. 1=1650 SOLAH PACHÁS.

No. 2=1750 SATRAH PACHÁS.

(d) Jab *target* par *fire* karna ho to siwáe aise *target*on ke jin ki báin had ka *range* dahni had se ziáda ho, *No.* 1 *gun* ko hamesha warla *range* dia jáega.

(e) Agar hawa itni ziáda ho jis se *elevation* ke *correction* ki zarurat ho, tab zaruri *allowance* ka hisáb lagáya jáega (Sabaq 59) aur gazon men tabdil kia jáega. *Range* dene se pahle durust kia jáega.

5. Bayán.

Section commander Sabaq 33 aur 34 ke mutábiq *target* ka bayán karega. Is bát ka khayál rakha jáe kih ek se dusre *target* par *switch* karte waqt ákhiri *target* ám taur par bayán men sab se ziáda madad deta hai.

6. *Fire* ka tariqa.

(a) Hukm, "*right and left 2 taps*".

Gunen target ke *centre* men *lay* ki játi hain. Pahle No. 1 *left* ko aur *No.* 2 *right* ko *traverse* karta hai.

(b) Hukm "*traversing.*"

No. 1 *gun target* ke dáen aur *No.* 2 *gun target* ke báen kináre par *lay* ki játi hai.

Donon *gunen target* ke ár pár *traverse* ki játi hain·

"*Fire* ke tariqe" ka hukm khatm hone par *Section Commander lay* ka hukm deta hai.

7. Pahlu ki hawa.

Section commander pahlu ki hawa ka ya to andáza karega ya sab ke nazdik ke 15 *minute* tak hisáb karega. (Sabaq 59). Niche likhe hue tariqe ke mutábiq *gun*on ko hukm dia jáega :—

"Hawa—*right* (ya *left*).............*taps*."

No. 1 *gun*on ko batáe hue fásile tak *traverse* karte hain aur nai shist ki jagah ko malum karte hain. Jab taiyár ho jáen to *No.* 2 ko bata dete hain.

Agar hawa ka zaruri *allowance* 3 *tap* se ziáda ho to yih *degree*on men dia jáega. *No.* 1 háth ki *degree*on ke zarie se

nai shist ke *point* ko malum karenge. Agar *correction* ki zarurat na ho to *heading* ko hukm se nikál dia játa hai.

8. *Fire* ki raftár.

(a) (i) Jab *normal* "*fire* ki raftár" ki zarurat ho to *fire* kholne ka hukm dia jáega yane "*FIRE*" *normal* ka hukm kát dia jáega.

(ii) Jab *rapid fire* ki raftár ki zarurat ho to lafz "*rapid*" HUKM *FIRE* SE PAHLE BOL DIA JÁE—YANE "*RAPID FIRE*".

(iii) *Harassing fire.*—Yih *fire* báqáida waqfon aur gair muqarrara arse tak *normal* aur *rapid* raftár se kia játa hai. Aise *fire* ke wáste jab *commander* hukm deta hai to wuh raftár aur zaruri arsa muqarrar karta hai.

(b) *Normal* . . 1 *Belt* 2 *minute* men.

Rapid . . 1 *Belt* 1 *minute* men.

9. *Fire* karne ka hukm.

Iska hukm : "*FIRE*" ám taur par *fire controller* deta hai. Agar is men ziáda ásáni ho to wuh *fire* ka ishára karega (Dekho *Section* 9—Isháre). Sabaq *No.* 58 ki taraf tawajjuh dilái játi hai, yane *burst*on ki lambái.

10. Yih hukm *fire* ke daurán men die ja sakte hain :—

(a) "*Stop*".

Yih hukm ám taur par isháre se dia játa hai (bázu ko pari *line* par dahne báen hiláya játa hai).

(b) *Ranging* karte waqt durustián :—

(i) *Direction* (rukh).

Section commander zarurat ke mutábiq ek ya donon *gun*on ko *deflection* dega.

No. 1 nai *line* men shist ka naya *point* pakarte hain.

Misál—

ALL—*RIGHT* 2 *TAP*.

NO. 1—*LEFT* 1 *TAP*.

(ii) *Elevation*.

Section commander correction ki miqdár ka faisala karta hai aur ya to naya *range* batáta hai ya zarurat ke mutábiq "upar" ya "niche" ka hukm deta hai.

Misál—

ALL—CHAUDAH SAU.

NO. 2—UPAR PACHÁS.

ALL—NICHE EK SAU.

ALL—2 *MINUTE* TAK.

(Agar bayán men *direction dial* ya *hand wheel* ke zarie se *target* ka bayán kia ho aur agar *pick up gun aiming mark* kia gaya ho to bád ke *correction minute*on men die jáen).

(c) "*GO ON*".

Yih hukm zabáni ya *fire* ke isháre se dia jáe.

11. Khule maidán men *squad* se mashq karáo.

SABAQ 62.—*APPLICATION OF FIRE-DIRECT*.

***Instructor* ke lie *note*.**

Zaruri sámán.—*Blackboard, landscape target*.

Is sabaq ko *lecture* ke taur par samjháya jáe.

1. *Fire control* ke usulon ki banáwat (*Section* 19, 2 bhi dekho).

(a) Achának kárrawái. Jitni jaldi mumkin ho sake *target* márna cháhie.

(b) Dekhbhál ki haden. Yih hamesha zaruri nahin hai kih goli ki már dikhái de.

(c) *Elevation* aur *direction* ki galation se bach nahin sakte (yane yih honi mumkin hain). Is wáste iláqe ko márne ka qáida hai.

2. WUH QÁIDE JIN KI RU SE USUL BANÁE GAE HAIN.

(a) Jis iláqe men *target* ka hona mumkin hai wuh sab iláqa *fire* se mára jáe.

(b) 2 *gun*on ke *fire unit* ke lie *traversing fire* ziáda se ziáda 50 gaz hai. (Sabaq *No*. 64, *para* 3 bhi dekho.)

Har *lift* men pichhle *lift* ka kuchh hissa shámil hona cháhie.

3. *AREA* MÁRNE KE LIE KHAYÁL RAKHNE KI BÁTEN.

(a) Chaurái.

(i) Hawa ke andáze men galati.

(ii) *Lay* karne ki mamuli galati, ghisáo.

(b) Gahrái.

(i) *Range* lene men galati. (Dekho Sabaq 60).

(ii) Mausimi hálát ke *allowance* ki galati.

(iii) *Gun* ka ghisáo.

4. *TARGET*ON KI DARJABANDI.

*Target*on ko tin hisson men bánta gaya hai—

Group A.—Jis ki sab *range*on par 30′ tak chaurái ho aur gahrái na ho ya 200× tak gahrái ho. (Sabaq 63).

Group B.—Jis *target* ki chaurái 30′ se lekar 50× tak ho aur gahrái ya to na ho ya 200× tak ho. (Sabaq 64).

Group C.—Harakat karne wále *target*. (Sabaq 65).

***Note*.—Jab *target* ki gahrái 50× se ziáda ho aur *target* ko márne ke lie ziáda *lift*on ki zarurat ho to ek se ziáda *section*on ki zarurat hogi. Har ek *section* ko alag alag *lay* karne ke lie nuqta dia jáega.**

5. *DIRECTION* KE LIE *FIRE* KE TARIQE.

(a) *Right and left 2 taps*.

i. Donon *gun*en ek hi nuqte par *lay* hon.

ii. Sab *range*on par *direction* ki galati ko dur karne ke lie *right* aur *left* 2 *tap* bola játa hai. Yih 30′ chaure *target* ke lie bhi káfi hai.

iii. *Gun*en pahle andar aur phir báhar ko *traverse* **karti** hain.

iv. Kabhi kabhi *overhead* ki hálaton men *traversing right* aur *left*, 2 *tap* se ziáda barh bhi jáega.

(b) " *Traversing*."

i. *No.* 1 *target* ke dahni taraf aur 2 báin **taraf** ***lay*** karta hai.

ii. Donon *gun*en *target* ke ár pár *traverse* pari aur tirchhi *line* par karti hain.

iii. *Direction* ki galation ko dur karne ke lie har ek *gun target* ke kináron se báhar 2 fáltu *tap* **márti** hai.

SABAQ 63.—*GROUP A TARGET*.

Instructor ke lie *note*.

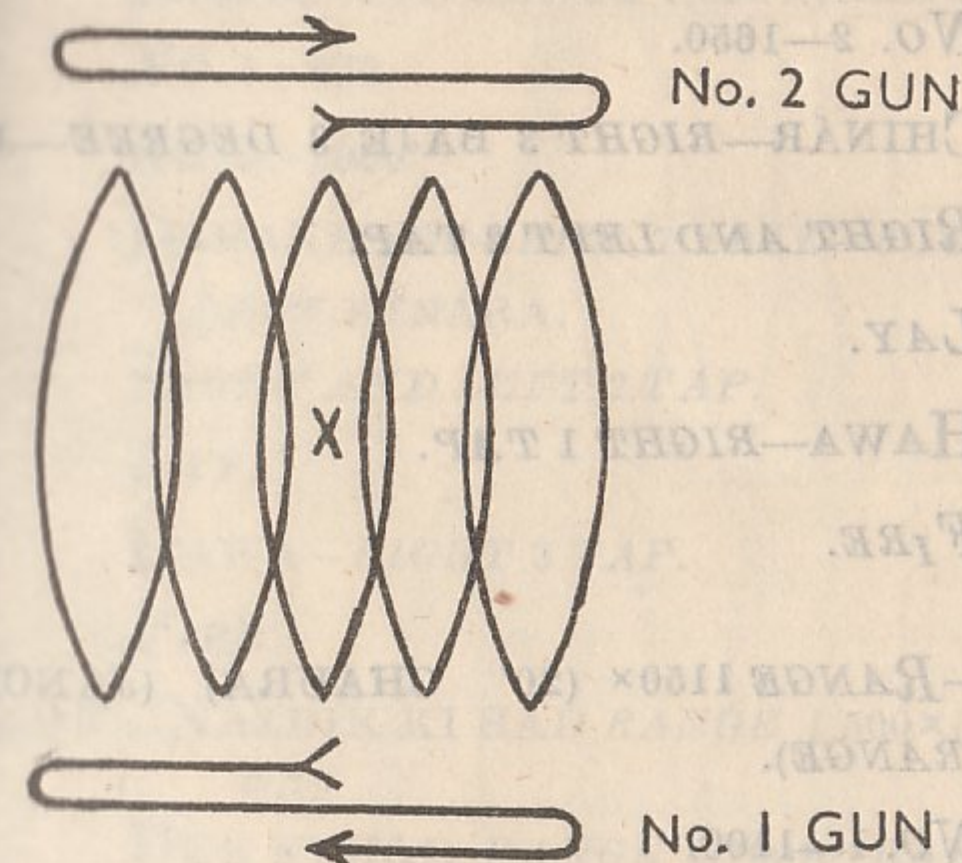
Zaruri sámán.—***Blackboard, landscape target,*** **durbin.**

1. BAYÁN KARO KIH.—

Group A *target* (jis men gahrái na ho ya 200× tak gahrái ho) *right* aur *left* 2 *tap* ke zarie se mára jáega.

*Gun*en *target* ke bich ki jagah par *lay* hongi aur *fire* karne wála har ek *range* par *right* aur *left* 2 *tap* se *traverse* karega. Chunkih donon *gun*en ek hi nuqte par *lay* hoti hain, is lie agar zarurat ho to ek sáth donon *elevation*on par *fire* kia ja sakta hai. Is surat men niche wála *elevation* us *gun* ko dia jáega jo kih *target* ke nazdik ke kináre ke sámne hai. [Dekho Sabaq 61, 4 (d)].

Target ki gahrái ko 200 × ki *lift* se mára jáega, jab tak kih nazdik wála kinára mára nahin játa. Agar donon siron ke *angle of sight* ka farq ziáda ho to fáltu *lift* di jáegi.

2. Shakl 13 men ek *group* A *target* 1,000× ke *range* par dikháya gaya hai jis par ek *section fire* kar raha hai.

Shakl 13. ***Right and Left 2 tap.***

3. *Group* A *target* ko márne ki **Misál.**

Niche likhe hue *reference point*, jo kih Taswir 1 men dikháe gae hain, *landscape target* par chune gae hain.

(a) Ghás ki GANJI (R. P. 1).

(b) Do CHINÁR ke darakht (R. P. 2).

Group A ***Target***. *Range* 850* (*Range finder* se).

ALL 850.

RIGHT HAD—TÁLÁB—NAZDIK KA KINÁRA—BARA DARAKHT.

RIGHT AUR *LEFT* 2 *TAP*.

LAY.

FIRE.

Target B—*RANGE* 1600× (*RANGE FINDER* SE).

NO. 1—1550.

NO. 2—1650.

CHINÁR—*RIGHT* 3 BAJE 3 *DEGREE*—JHÁRI.

RIGHT AND LEFT 2 *TAP*.

LAY.

HAWA—*RIGHT* 1 *TAP*.

FIRE.

Target C—*RANGE* 1150× (20′ CHAURA) (JÁNCHA HUA *RANGE*).

NO. 1—1100.

NO. 2—1200.

RIGHT HAD—CHÁR BARE DARAKHT.

RIGHT AND LEFT 2 *TAP*.

LAY.

HAWA—*LEFT* 1 *TAP*.

FIRE.

Target D—*RANGE* 1000× (30′ CHAURA) (*RANGE* JÁNCHA HUA).

ALL—1000.

CHINÁR—THORA *LEFT* AUR NICHE—MAKÁN.
RIGHT AND LEFT 2 *TAP*.

LAY.

FIRE.

Target E—NAZDIK KI HAD *RANGE* 950 × (*RANGE FINDER* SE).

DUR KI HAD *RANGE* 1,000 × (*RANGE FINDER* SE).

NO. 1—950.

NO. 2—1050.

DARAKHAT—*LEFT* 7 BAJE—JUTA HUA KHET *LEFT* KINÁRA.

RIGHT AND LEFT 2 *TAP*.

LAY.

HAWA—*RIGHT* 3 *TAP*.

FIRE.

Target F—NAZDIK KI HAD *RANGE* 1,500× (*RANGE FINDER*).

DUR KI HAD *RANGE* 1,700× (*RANGE FINDER*).

KINÁRON KE BICH *LINE OF SIGHT* KA FARQ 20′.

NO. 1—1,500.

NO. 2—1,600.

CHINÁR—*RIGHT* 4 BAJE 2 *DEGREE*—*ENFILADE* MEN JHÁRBANDI.

RIGHT AND LEFT 2 *TAP*.

LAY.

FIRE.

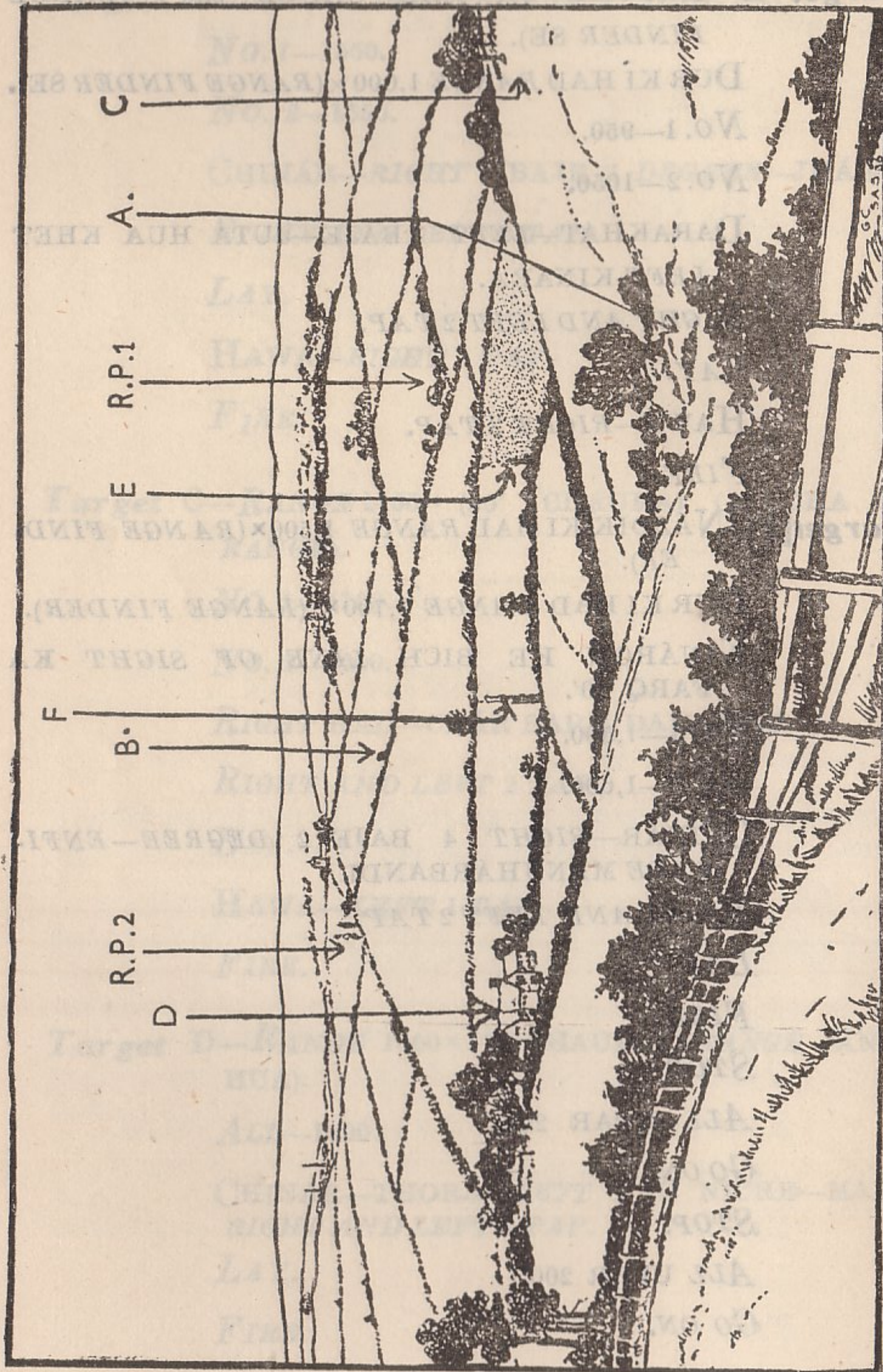
STOP.

ALL UPAR 200.

GO ON.

STOP.

ALL UPAR 200.

GO ON.

Taswir I.

SABAQ 64.—*GROUP* B *TARGET.*

Instructor ke lie *note.*

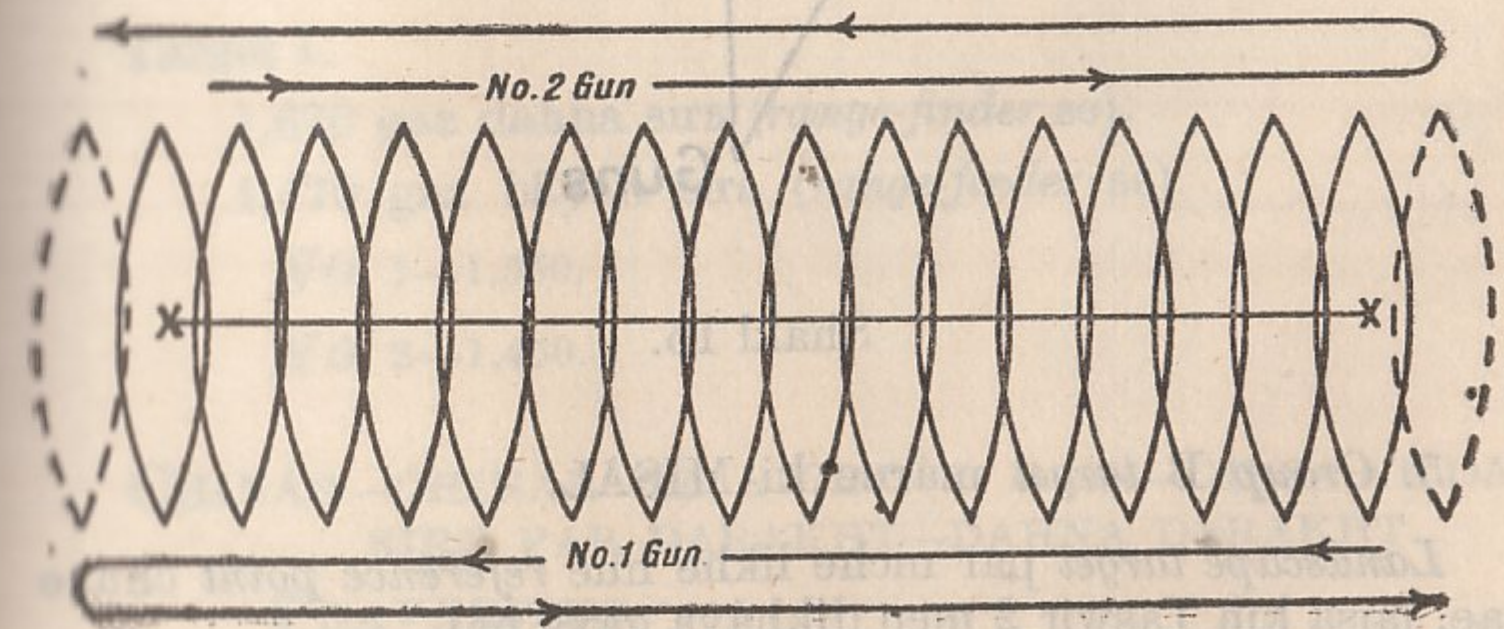
Zaruri sámán.—Sabaq 63 ke mutábiq.

1. Bayán karo.

Group B *target* (jis men gahrái na ho ya 200× tak gahrái ho) *traversing fire* se mára játa hai. Har ek *gun* ko *target* ke siron se báhar 2 *tap* lagáne se *direction* ki galatián dur ho játi hain.

Donon *gunen* tamám *target*on par *traverse* karti hain. Jahán *combined sight* ki zarurat ho ek sáth 2 *elevation*on se *fire* kia ja sakta hai. Jab yih hota hai to niche wála *elevation* us *gun* ko dia játa hai jo kih *target* ke nazdik wále kináre ke sámne hai. Agar *target* ke kináre tirchhe hon, yane " darakht left 11 baje jhári ", to *oblique traverse* kia jáega. *Angle of sight* ka farq lagátár lia jáega. Agar pari *line* ki tarah bayán kia gaya hai yane " khet ka nazdik ka kinára ", tab fáltu *lift* (jaisa kih *group* A *target* ke lie hai) zarur die jáenge,—agar *angle of sight* men farq hone ki wajah se iski zarurat ho. *Group* A *target* ki tarah *target* ki gahrái ko 200× ki *lift* di jáegi.

2. Bayán.

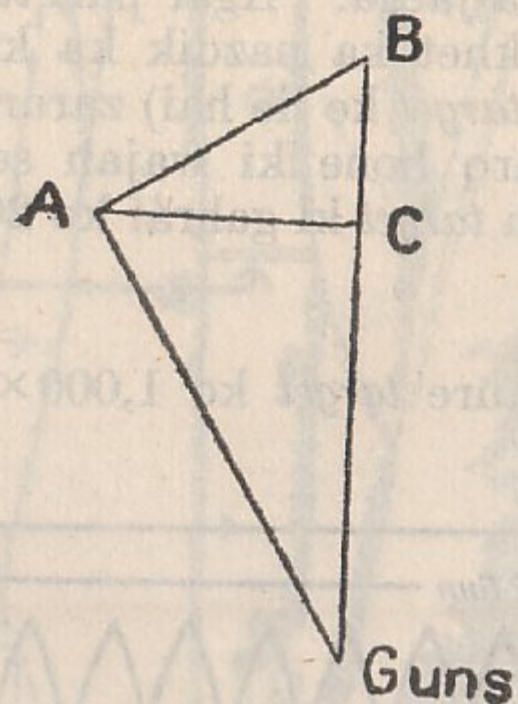
Ek *fire unit* 50× chaure *target* ko 1,000×ke fásile se már raha hai.

Shakl 14. *Traversing.*

(a) X.............X Shist ke asli nishán hain.

(b) Jo *beaten zone* nuqtedár lakiron se záhir kie gae hain, wuh *target* ke báhar ke kináron se 2 fáltu *tap* záhir karte hain.

3. Bayán.

Yih malum kia gaya hai kih *target* ka wuh sab se bara bagali phailáo jis par ek *fire unit* jis men 2 *gun*en hon ziáda *ammunition* kharch kie bagair aur ziáda der kie bagair achchhi tarah se *fire* kar sakta hai, 50 gaz hai.

4. BAYÁN aur SHAKL se záhir kia gaya hai kih *target* ka bagali phailáo *gun* se us *angle* ki chaurái máni játi hai jo kih *gun* par banta hai na kih *target* ki asli lambái, yane Shakl 15 men jo fásila lia gaya hai wuh AC lia gaya hai na kih AB.

Shakl 15.

5. *Group* B *target* márne ki MISAL.

Landscape target par niche likhe hue *reference point* chune gae, jaisa kih Taswir 2 men dikháya gaya hai.

(a) Ghás ki ganji (*R. P.* 1) warli taraf ka báyán kona; jisko " GANJI " pukára jáega.

(b) Do chinár ke darakht (*R. P.* 2), báyán chinár ka darakht, isko " CHINÁR " kaha jáega.

Target G. Chaurái wála *target*. *Range* 1,000 gaz (jáncha hua).

ALL—*1,000*.

CHINÁR—6 BAJE MAKÁN KA DAHNA SIRA.

MAKÁN SE 3 BAJE 2 *DEGREE RIGHT*—JHÁRI.

TRAVERSING—LAY.

FIRE.

Target H. Chaurái wála *target*. *Range* 1,500 gaz (*range finder* se).

ALL—1,500.

CHINÁR—*RIGHT* 4 BAJE 4 *DEGREE*—JHÁRI—JHÁRI SE *LEFT* 9 BAJE—JAHÁN JHÁRBANDI BARE DARAKHT KE PICHHE CHHUP GAI HAI.

TRAVERSING.

LAY.

HAWA—*RIGHT* 2 *TAP*.

FIRE.

Target I.

1,670 gaz dahna sira (*range-finder* se).

1,470 gaz báyán sira (*range-finder* se).

NO. 1—1,550.

NO. 2—1,450.

CHINÁR—CHINÁR SE *RIGHT* 2 BAJE—GIRJA KE DAHNE SIRE PAR DARAKHT—DAHNA DARAKHT.

TRAVERSING.

LAY.

FIRE.

Stop.

All—up 200.

Go on.

Target J.

1,170 gaz nazdik ka kinára (jáncha hua).

1,345 gaz dur ka kinára (jáncha hua).

Donon kináron ke darmiyán *line of sight* ka farq 20 ʹ.

No. 1—1,100.

No. 2—1,200.

GANJI—*LEFT* 8 BAJE 2 *DEGREE* 20 *MINUTE*—MURABBA KHET JISKI NAZDIK KI JHÁRBANDI MEN EK BARA DARAKHT HAI—KHET KA NAZDIK KA KINÁRA.

Traversing.

Lay.

Hawa—*right* 1 *tap.*

Fire.

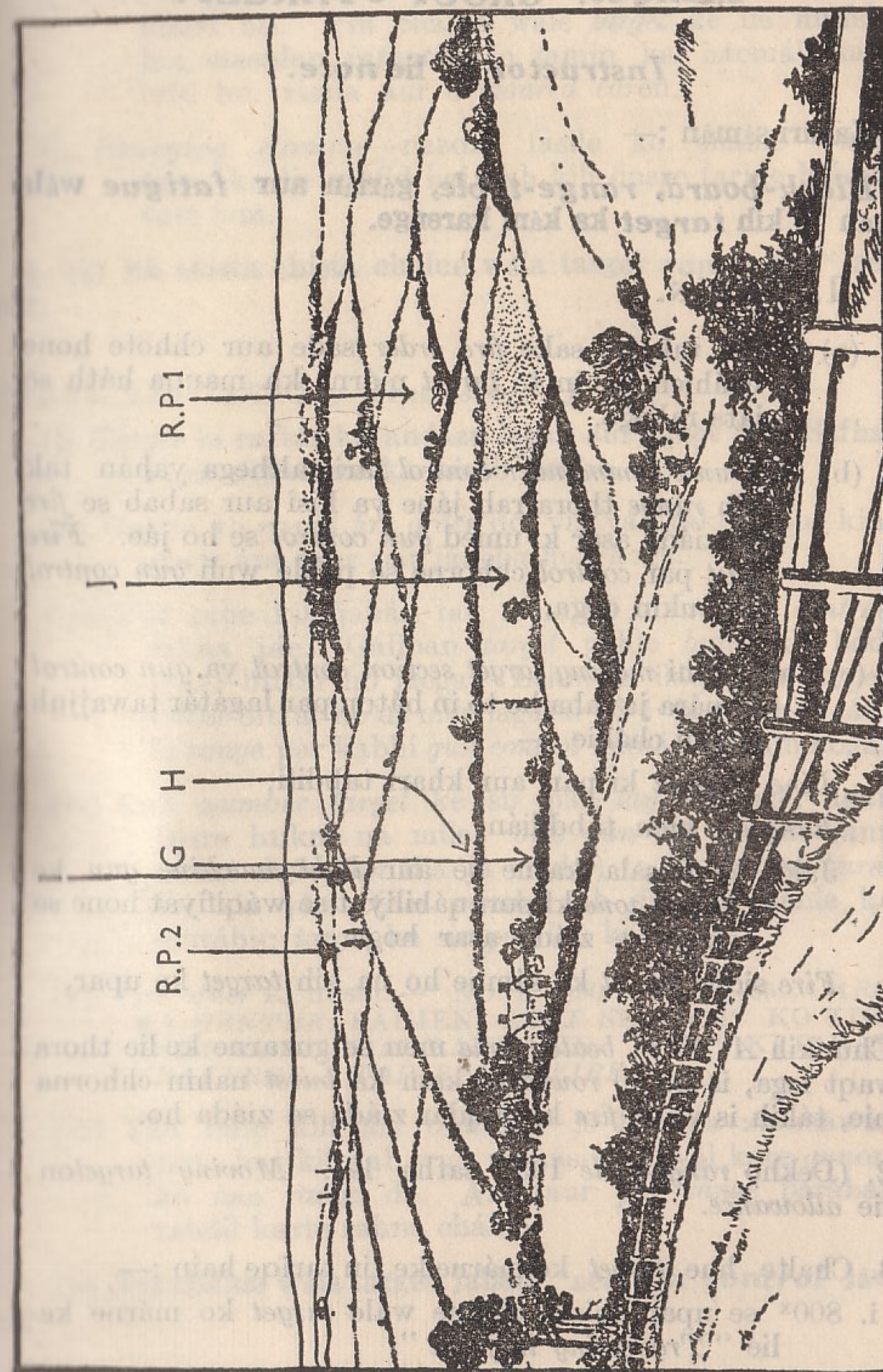
Stop.

All—up 200.

Go on.

Stop.

All—up 200.

Go on.

Taswir II.

SABAQ 65.—*GROUP C TARGET.*

Instructor **ke lie** ***note.***

Zaruri sámán :—

Black-board, range-table, **gárián aur** ***fatigue*** **wále jawán jo kih** ***target*** **ka kám karenge.**

1. Bayán.

(a) Jahán tak ho sake *fire order* sáde aur chhote hone cháhien nahin to *target* márne ka mauqa háth se játa rahega.

(b) *Fire unit commander control* jári rakhega yahán tak kih *range* thora rah jáne ya kisi aur sabab se *fire* ke ziáda asar ki umed *gun control* se ho jáe. *Fire unit* par *control* chhorne se pahle wuh *gun control* ka hukm dega.

(c) Jab kabhi *moving target section control* ya *gun control* se mára ja raha ho to in báton par lagátár tawajjuh rakhni cháhie :—

Line of sight ki pari aur khari tabdili.

*Range*on men tabdilián.

Jaldi se faisala karne se aur *light machine gun* ke *beaten-zone* ki puri qábiliyat se wáqifiyat hone se ziáda se ziáda asar hoga.

Fire sidha *target* ke sámne ho na kih *target* ke upar.

Chunkih *A. F. V. beaten zone* **men se guzarne ke lie thora sa waqt lega, is lie 50** *round* **se kam ka** *burst* **nahin chhorna cháhie, tákih is waqt** *fire* **ki miqdár ziáda se ziáda ho.**

2. (Dekho *range-table* 1937 safha 14). *Moving target*on ke lie *allowance.*

3. Chalte hue *target* ko márne ke tin tariqe hain :—

i. 800ˣ se upar áhista chalne wále *target* ko márne ke lie " *Traversing in front* ".

ii. Aise iláqe ko márna jis men se *target* ke guzarne ki umed ho. Yih chalne wále *target* ke lie mufid hai, masalan *infantry* jo zamin ka istemál kar rahi ho, risála aur *armoured caren.*

iii. *Swinging traverse*—nazdik fásile ke chalne wále *target* ke lie mufid hai, jab kih dusre tariqe bahut sust hon.

4. (a) **Ek áhista áhista chalne wála target** ***range*** **800ˣ se upar.**

Márne ka tariqa—*Traversing in front.*

(i) *Target* ki raftár ka andáza lagáo aur *range table* Safha 14 se *deflection* ka hisáb dekho.

(ii) *Gun*on ko *rapid fire order* do, yih yád rakhte hue kih *range* ám taur par jáncha hua hoga.

(iii) Yád rahe kih jahán tak mumkin ho *section control* rakha jáe. Gáliban *target* pahle *burst* ke bád tittar bittar ho jáega. Lekin jis iláqe men *target* tittar bittar ho us men lagátár *fire* jári rakha jáe. Is *range* par kabhi *gun control* munásib nahin hoga.

(iv) *Gun number target* ke sir par *lay* karenge, agar dusra hukm na mile. Jab *gun lay* ho jáe (aur zaruri *deflection* dia ja chuke) to ek lamba *burst fire* kia jáe. *Gun number* ab dobára pahle ke mutábiq *target* ke sir par *lay* karenge.

(v) *Fire order* ki misál.—" *NO.* 1, 1550. *NO.* 2, 1650. *ARC* KA *CENTRE*, FAUJEN *LEFT* SE *RIGHT* KO TIRCHHE RUKH CHAL RAHI HAIN. *FRONT* KI TARAF *TRAVERSE* 1 *TAP RAPID FIRE* ".

(vi) Yád rahe kih *fire controller* is bát ka zimmawár hota hai kih jab wuh munásib khayál kare *gun*on ko nae *range* de. Ám taur par *range* barábar tabdil karte rahna cháhie.

(b) **Tez chalne wála target, jabkih** ***section control*** **jári ho.**

MÁRNE KA TARIQA.—US *AREA* KO MÁRO JIS MEN SE *TARGET* GUZREGA.

Yih is tarah se kia jáega :—

(i) Muqarrar kie hue *arc* men is qism ke raqbe shámil karne cháhien jin ka bandobast *fire* ki tajwiz men pahle hi se kia gaya ho.

(ii) Ek munásib nuqta chuno jo tumháre khayál men *target* ke ráste men hoga. Yih khayál kia gaya hai kih is nuqte par *gun*en *lay* karne men ek *minute* lagega. Is lie aisa nuqta chuna jáe jo kih *target* ke sámne kuchh fásile par ho. Agar mumkin ho to us nuqte ka 95 fi sadi durust *range* lia jáe. Agar aisa na ho sake to andáza kar lo.

(iii) Nuqte par ek durust aur tez *fire order* do, siwáe, "*fire*" ke hukm ke.

(iv) *Range table* ke Safha 14 ke *deflection* ke qáidon se *deflection* ka andáza lagáo. Jab dushman ka agla ádmi us *angle* par áe to "*Rapid fire*" ka hukm do. *Gun*on se ek lamba *burst* kia jáega.

(v) Agar *target* tittar bittar ho jáe to us iláqe ko máro jis men dushman tittar bittar ho gaya ho. Agar yih nahin, to phir *target* ke *advance* ke ráste men ek dusra nuqta chuno aur usi tariqe se phir dushman ko máro.

5. Khule maidán men mukhtalif raftár aur fásilon wále *target*on par mashq karáo.

SECTION 21—*FLANKING FIRE* AUR *OVERHEAD FIRE*.

1. Apni faujon ko *supporting fire* dena *support platoon* ka pahla *tactical* kám hai. Jin faujon ko yih madad di játi hai, unki hifázat ka khayál rakhna *commander* ka pahla farz hai.

2. *Supporting fire* ya to *flank* se ya apni faujon ke sir ke upar se dia ja sakta hai. Jahán mumkin ho *flanking fire position* talásh karni cháhie. Yih sirf is lie nahin kih *beaten zone* ke lambe hone ki wajah se *fire* ka asar ziáda achchha milta hai, balkih is lie bhi kih *flanking fire* banisbat *overhead fire* ke hifázat se apni faujon ke bahut ziáda nazdik dála ja sakta hai. *Overhead fire position* lene se pahle yih malum kar lena zaruri hai kih aisa *fire* hamári faujon ke lie hifázat se ho sakega ya nahin. Is lie *gun*on ko *action* men láne ke lie waqt ziáda kharch hota hai.

3. Is wáste kih apni faujon ki hifázat ka yaqin ho jáe, yih zaruri hoga kih *controller* ko us ki *position*en ya harakaten nazar áti hon ya us ko malum hon. *Defence* men is kám men koi khás mushkil nahin hogi. *Attack* men apni faujon ki harakaton ki dekhbhál mukhtalif báton par munhasir hoti hai, masalan zamin ki banáwat (wuh khuli, tang, hamwár ya pahári hai), *field of view* men rukáwat, chizon ka sáf taur se nazar na ána, dhuen ke parde wagaira. Chunkih aisi dekhbhál ka mushkil se hi yaqin ho játa hai, is lie sáf záhir hai kih khabardári ziáda rakhni paregi.

4. Upar likhi hui báton ke aláwa *machine gun* apne mazbut *tripod* aur *fire* ka *group* chhota hone ki wajah se apni faujon ko *overhead fire* aur *flanking fire* dene ke achchhi tarah qábil hoti hai.

5. *Overhead fire* aur *flanking fire* khás qáidon ke niche dia játa hai. Wuh qaide áge ke *section*on men die gae hain.

Apni fauj ki hifázat ke mutaalliq koi bhi sawál hal karte waqt hamesha kharáb se kharáb hálat ko in qáidon ke istemál ki bunyád samajhna cháhie.

SABAQ 66—*FLANKING FIRE.*

Instructor ke lie *note.*

Zaruri sáman.—*Sand model, slide rule.*

Sikháne ka tariqa.—Qáidon ka istemál *model* par batáya jáe aur phir class ko zamin par mashq karái jáe.

1. Bayán karo kih—*flanking fire* ke niche likhe hue tariqe hain. Taswir 3 men di hui shaklen *defence* aur *attack* ki misálon ko záhir karti hain.

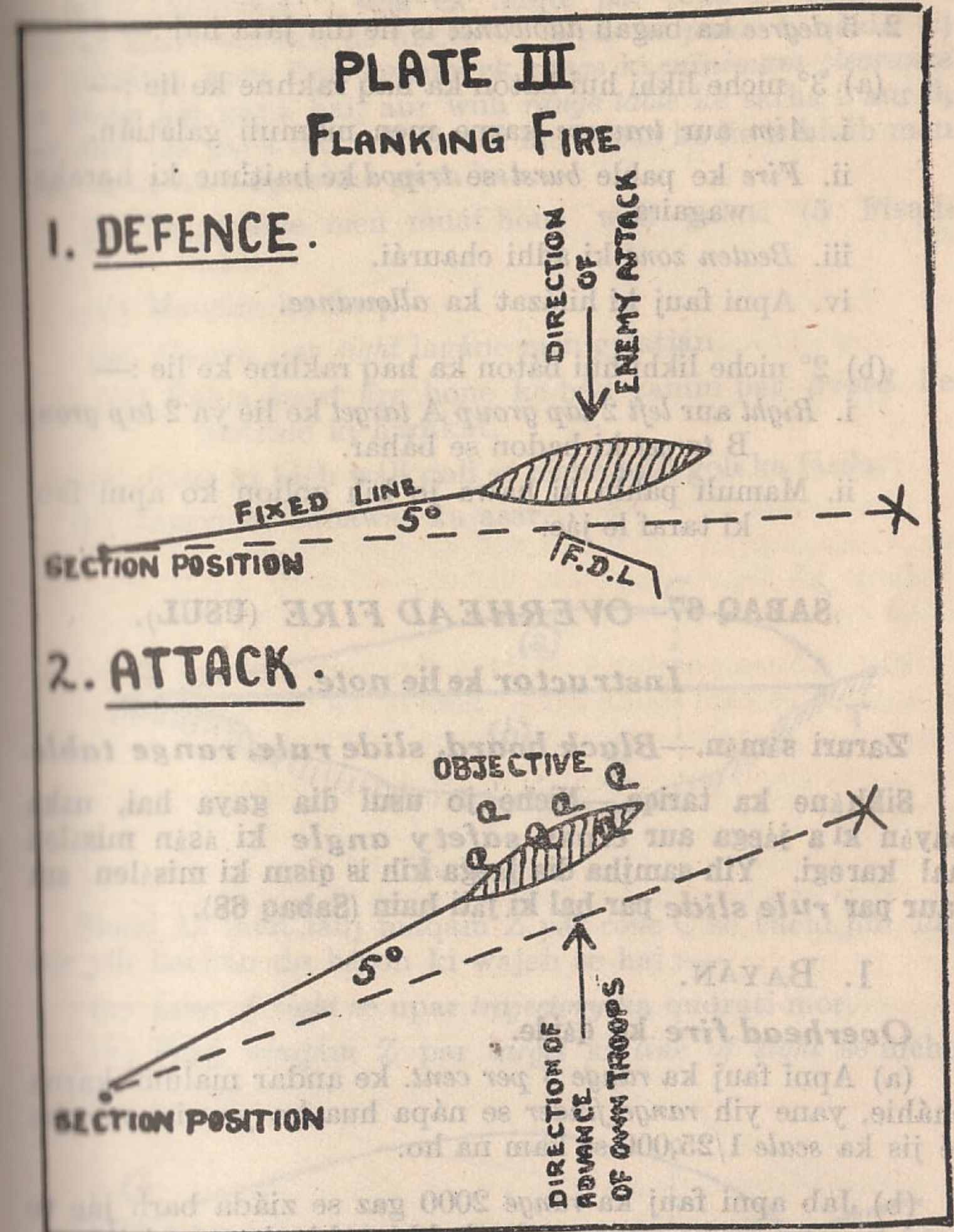
(a) *Gun* aur apni faujon ke *flank* ko miláne wáli *line* se, *line of fire* 5° ke andar nahin hona cháhie.

Defence.—F. D. L. ke agle kináre se 5° ke andar *fixed line* nahin lagái jáegi.

Attack.—Junhi kih apni koi fauj *objective* se 5° ki *line* par pahunche *objective* par *fire* dálna band kar dia jáe.

(b) 5° ki had *point* (X) tak ho, jiska fásila upar ke *elevation* ke lie 500^x se kam nahin hona cháhie.

(c) Is qism ka *fire* karne ki kabhi koshish na ki jáe, agar khatarnák iláqe ke ird gird apni faujon ki *position*en malum na hon.

Jaisa kih pahle batáya gaya hai, is ke lie zaruri hota hai kih ya to apni faujen nazar áti hon ya ek *timed programme* banáya gaya ho jo kih *advance* ki raftár par munhasir ho. Apni faujon ko is raftár se barhna nahin cháhie.

Taswir III.

Direction of enemy attack=Dushman ke hamle ka rukh.

Direction of advance of own troop=Apni fauj ka *advance* ka rukh.

2. 5 *degree* ka bagali *allowance* is lie dia játa hai :—

(a) 3° niche likhi hui báton ka haq rakhne ke lie :—

i. *Aim* aur *traverse* karne men mamuli galatián.

ii. *Fire* ke pahle *burst* se *tripod* ke baithne ki harakat wagaira.

iii. *Beaten zone* ki ádhi chaurái.

iv. Apni fauj ki hifázat ka *allowance*.

(b) 2° niche likhi hui báton ka haq rakhne ke lie :—

i. *Right* aur *left* 2 *tap group* A *target* ke lie ya 2 *tap group* B *target* ki hadon se báhar.

ii. Mamuli pahlu ki hawa jo kih golion ko apni fauj ki taraf le jáe.

SABAQ 67—*OVERHEAD FIRE* (USUL).

Instructor ke lie *note*.

Zaruri sámán.—*Black board, slide rule, range table*.

Sikháne ka tariqa.—Niche jo usul dia gaya hai, uska bayán ki a jáega aur *class safety angle* ki ásán misálen hal karegi. Yih samjha dia jáega kih is qism ki misálen ám taur par *rule slide* par hal ki játi hain (Sabaq 68).

1. Bayán.

***Overhead fire* ke qáide.**

(a) Apni fauj ka *range* 5 *per cent.* ke andar malum karna cháhie, yane yih *range finder* se nápa hua ho ya aise naqshe se jis ka *scale* 1/25,000 se kam na ho.

(b) Jab apni fauj ka *range* 2000 gaz se ziáda barh jáe to apni fauj ke sir ke upar se *fire* kabhi nahin karna cháhie.

(c) Jis fauj ke sir ke upar se *fire* kia ja raha ho, yaqin kar lena cháhie kih golián us ke sir ke upar se ek khás unchái se guzar rahi hain.

(d) *Barrel* aur *tripod* achchhi hálat men hone cháhien.

2. Clearance aur *Minimum Clearance*.

(a) "*Clearance*", kisi ek nuqte par *cone* ki bich wáli goli ki khari unchái, us nuqte se. Upar ke *para* 1, qáida (*c*) ke mutábiq apni fauj ke har ek *range* ki *minimum clearance* ka hisáb kia gaya hai, aur wuh *range table* ke safha 2 aur 3, par darj kia gaya hai. Niche di hui báton ke lie is hisáb men káfi *safety* ka haq rakha gaya hai :—

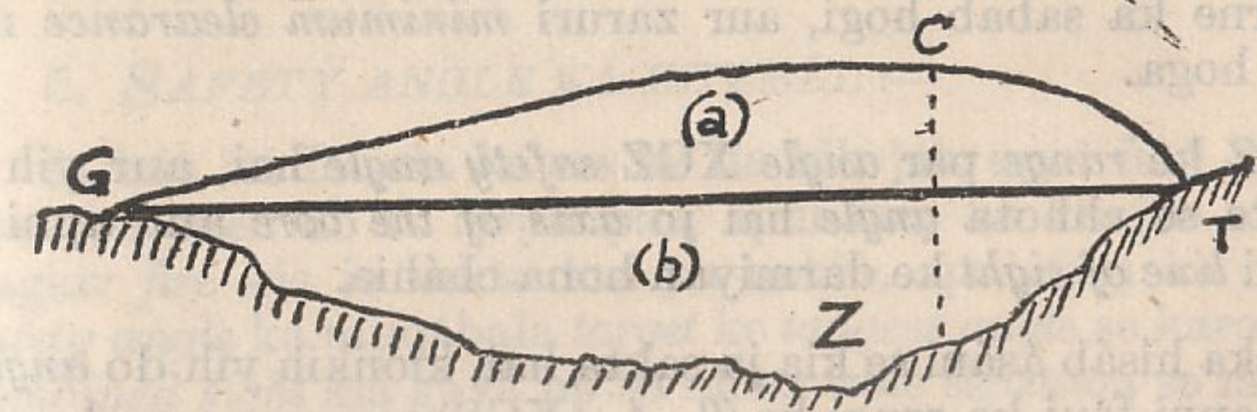
(i) *Range* lene men muáf hone wali galati (5 Fisadi tak).

(ii) Mausim ka farq.

(iii) *Gun*on par *sight* lagáne men galatián.

(iv) Pahla *burst fire* hone ke bád zamin par *tripod* ke baithne ki harakat.

(v) *Cone* ki bich wáli goli se niche wáli goli ka fásila.

(b) Zamin ki banáwat ka asar.

Shakl 16.

Shakl 16 men fauj maqám Z par *cone* C se bachi hui hai aur yih bacháo do báton ki wajah se hai :—

(a) *Line of sight* se upar *trajectory* ka qudrati mor.

(b) Fauj maqám Z par *target* ki *line of sight* se niche hai.

Shakl 17.

Shakl 17 men sirf *trajectory* ke mor ke sabab se fauj maqám Z par *cone* C se bachi hui hai. Shakl 16 aur 17 men jo sawál *overhead fire* kholne se pahle hal kar lena cháhie, wuh yih hai kih áya *cone* maqám Z par *minimum clearance* se guzrega ya nahin.

3. *SAFETY ANGLE.*

Minimum clearance ek *angle* ke taur par bhi záhir kia ja sakta hai (dekho Shakl 18).

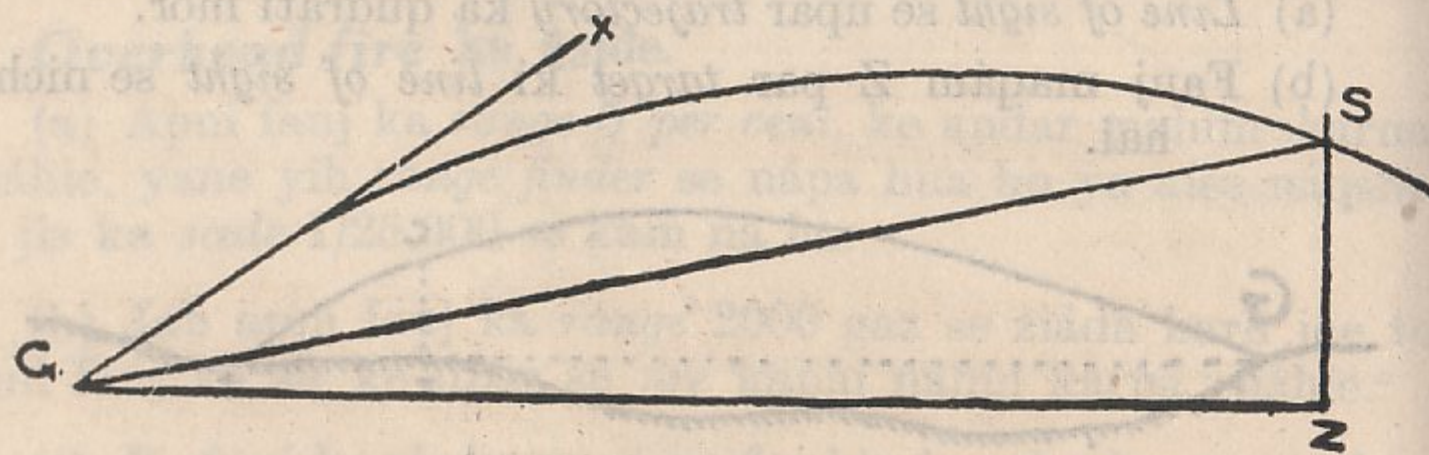
G *gun* hai.

GX *axis of the bore* hai.

SZ, Z par apni fauj ke lie *minimum clearance* hai.

Usul ke taur par *axis of the bore* ki sirf ek *position* hogi jis se bich ki goli sidhi S se guzregi. Farz karo GX yih *position* hai. Ab is se koi bhi nichli *position trajectory* ke S ke niche se guzarne ka sabab hogi, aur zaruri *minimum clearance* nahin hásil hoga.

GZ ke *range* par *angle* XGZ *safety angle* hai, aur yih wuh chhote se chhota *angle* hai jo *axis of the bore* aur apni fauj tak ki *line of sight* ke darmiyán hona cháhie.

Iska hisáb ásáni se kia ja sakta hai, kionkih yih do *angleon*, yane apni fauj ke *range* ke *T. A.* (XGS) aur us *range* ke *minimum clearance angle* (SGZ) se milkar banta hai. Har ek *range* ka *safety angle* alag hai aur *range table* ke Safha 2 aur 3 par dia gaya hai.

Shakl 18.

4. *CONTROL POST.*

Niche likhi hui báton ka khayál rakhkar chuna jáe :—

(a) *Gunon* se 6 *foot* se ziáda uncha na ho. Agar 6 *foot* se uncha na ho to yih farz kia ja sakta hai kih hamári faujen *post* se *target* tak ki *line of sight* se jitni niche hain, utni hi *gunon* se bhi niche hain

Agar *control post* 6 *foot* se ziáda uncha ho to *contro post* se apni fauj aur *target* ki *line of sight* ko nápne aur *gunon* se nápne men farq hoga. Is wáste *slide rule* se durust jawáb nahin milega.

(b) *Control post* se *gunen*, fauj aur *target* nazar áne cháhien.

(c) Upar *para* (a) ki wajah se *gun* se *target* aur *control post* se *target* ke *rangeon* men 50^x se ziáda farq nahin hona cháhie.

5. *SAFETY ANGLE* KA ISTEMÁL :—

Is bát ka faisala karne ke lie kih jab apni fauj kisi khás *position* men ho to *target* par, apni fauj ko khatre men dále bagair *fire* kia ja sakta hai ya nahin, apni fauj ke *range* ke *safety angle* ka muqábala *target* ke *tangent angle* se karo. Agar *combined sight* kia gaya ho to niche wále *elevation* se muqábala karo. Niche likhe hue usulon ke mutábiq kám kia jáega :—

(a) Agar apni fauj ka *safety angle target* ke niche wále *tangent elevation* se kam hai to fauj *safe* (mahfuz) hai.

(b) Agar zaruri *safety angle tangent angle* ke barábar hai to fauj mahfuz hai, basharte kih fauj *target* tak ki *line of sight* se upar na ho.

Misál :—

Agar apni fauj *line of sight* ke sáth sáth *target* par jis ka kih *range* 1950 hai, *advance* kare to jab fauj *gunon* se 1500 gaz ke fásile par pahunche to *fire* band karna hoga, kionkih 1900 ka *tangent angle* 3° 47′ hai jo kih 1500 ke *safety angle* ke barábar hai (dekho *range table* Safha 3).

(c) Agar zaruri *safety angle tangent angle* se bara ho to apni fauj tab tak mahfuz na hogi jab tak *target* ki *line of sight* se itni hi niche na ho jitna kih in do *angle*on men farq hai.

Misál :—

Target ka *range—range finder* se=1700 gaz.

Apni fauj ka *range—range finder* se=1400 gaz.

Combined sight kia jáega, is lie hisáb niche wále *elevation* yane 1650ˣ se kia jáega.

1400ˣ ke lie *safety angle*=3° 24′ *Range table*

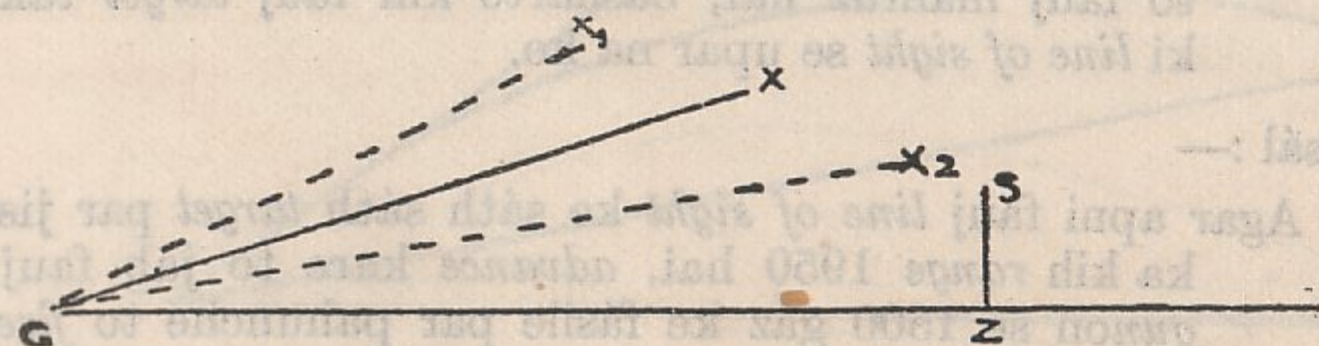
1650ˣ ke lie *tangent angle*=2° 46′ Safha 3.

Farq=.. 38′.

Is lie apni fauj ko mahfuz hone ke lie *target* ki *line of sight* se 38′ niche hona cháhie.

Apni fauj ko mahfuz hone ke lie *target* ki *line of sight* se niche jis *angle* par hona cháhie, usko *gun position* se durbin ki *degree*on ke zarie ya khare *angle* nápne ke aur kisi durust tariqe se, ya *slide rule* ke zarie nápa ja sakta hai.

SAFETY ANGLE KA *TANGENT ANGLE* KE SÁTH MUQÁBALA KARNE KE USUL.

Niche Shakl 19 men G *gun* hai, Z apni fauj, SZ *range* GZ ke lie *minimum clearance* hai aur T *target* hai. Agar T ko márna ho to *axis of the bore* GZ ki *position* par hoti hai, bich ki goli S se guzre to ZGX *safety angle* hai. Yih T ko márne ke lie jo *tangent angle* cháhie us ke barábar hai aur apni fauj mahfuz hai.

Shakl 19.

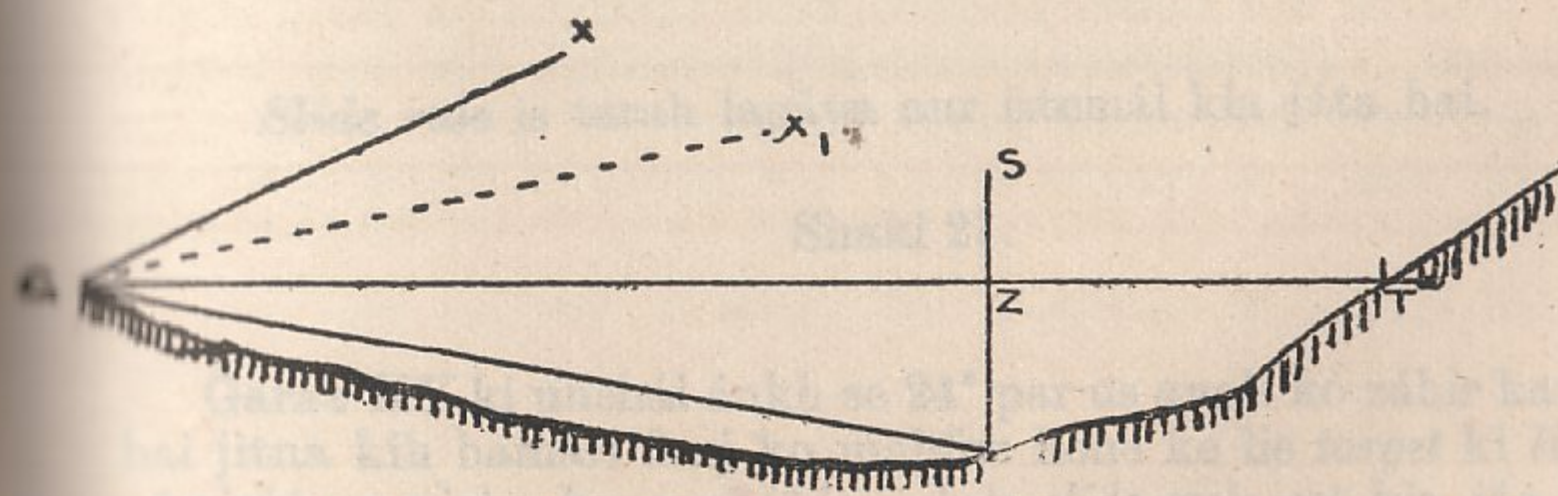
Agar T ko márne ke lie *axis of the bore* ki *position* GX ho to bich ki goli ki *trajectory* S ke upar se guzregi aur apni fauj mahfuz hogi.

Chunánchih ham ko yih ek usul mila kih agar *safety angle* (XGZ) *tangent angle* (XGT) ke barábar ya kam ho to apni fauj mahfuz hogi, bashartekih fauj *target* ki *line of sight* se upar na ho.

Agar kisi tarah T ko márne ke lie *axis of the bore* XZ par ho to *trajectory* S ke niche se guzregi. Is lie hamári fauj Z par mahfuz na hogi. Yahán par *safety angle* (XGZ) *tangent angle* (XGT) se bara hai.

Abhi tak ham ne sirf un hálaton ka khayál kia hai jabkih fauj *target* ki *line of sight* par ho. Baz waqt zamin ki banáwat hamáre muáfiq hogi, jis se apni fauj Z *line* GT se niche rah sakegi.

Shakl 20 men zamin ki banáwat hamáre muáfiq hai aur hamári fauj bajáe Z ke Z_1 par hai, is lie ham *axis of the bore* ko GX se GX_1 tak niche la sakte hain, jabkih X_1GZ_1 *range* GZ_1 ya GZ ka *safety angle* hai aur X_1GT *target* T ko márne ke lie *tangent angle* hai.

Yahán dekha ja sakta hai kih *safety angle* X_1GZ_1 *tangent angle* XGT se utna bara jitna kih zamin se fáida hone ki wajah se ZGZ_1 mila hai aur apni fauj mahfuz hai. Zamin aisi honi cháhie kih yih *angle* mil sake, warna fauj *unsafe* (gair-mahfuz) hogi.

Shakl 20.

Chunánchih hamen ek qáida mila kih agar apni fauj ka *safety angle target* ko márne ke lie niche wále *tangent angle* se bara ho to fauj tab mahfuz ho sakti hai jab *target* ki *line of sight* ka darmiyáni *angle safety angle* aur *tangent angle* ke farq ke barábar ya us se bara ho.

SABAQ 68—*OVERHEAD FIRE* MEN *SLIDE RULE* KA ISTEMÁL

Instructor **ke lie *note*.**

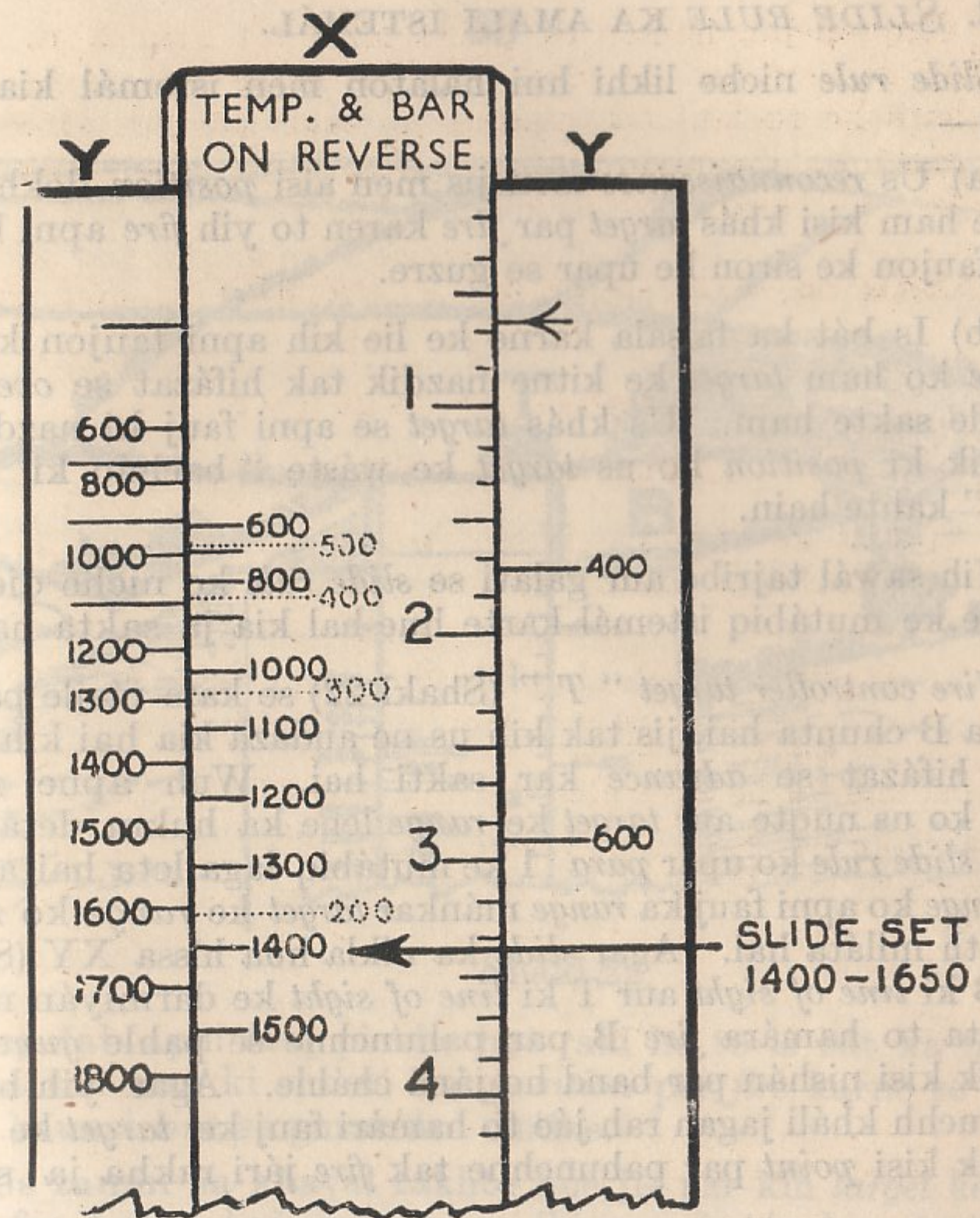
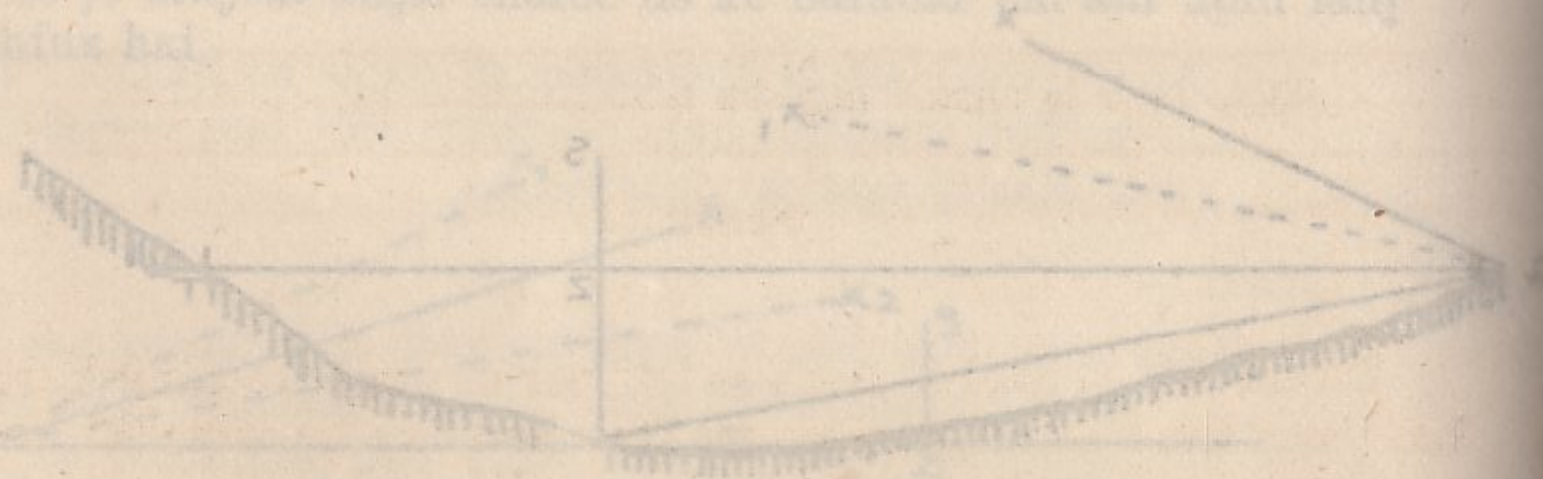
Zaruri sàmàn—*Slide rule*.

Sikhlái ka tariqa.—*Slide rule* se kám lene ke mukhtalif tariqon ka bayán kamre ke andar kia jáe; phir *class* zamin par mashq kare. *Instructor* amali sawál pesh kare.

1. BAYÁN KARO—*SLIDE RULE* KA MAQSAD.

Safety angle aur *tangent angle* ka muqábala karne ki taklif se bachne ke lie *slide rule* dia játa hai (Sabaq 92).

Sabaq 67, 5(c) men jo misál di gai hai, us men *slide rule* ka istemál is tarah karo :—" *Range to own troops* " ke *scale* par 1400, " *range to target* " ke *scale* par 1650 ke sáth miláo, jis se kih *slide rule* ke sir se upar nikal játi hai.

Rule slide ko dháge ki puri lambái tak khara karke aise pakro kih kandhe, *rule* Y, *target* ke nazdik apni fauj ki *line* men hon. (Dekho Shakl 21). Ab agar *target slide* ke sire X se upar dikhái den to fauj mahfuz hai.

Slide rule **is tarah lagáya aur istemál kia játa hai.**

Shakl 21.

Garaz XY ki unchái ánkh se 24" par us *angle* ko záhir karti hai jitna kih hamári fauj ko mahfuz hone ke lie *target* ki *line of sight* se niche hona cháhie. Jab *slide rule set* kia jáe to *rule* ke dahni taraf ke *scale* par bayán kia hua farq mil játa hai.

2. *Slide rule* ka amali istemál.

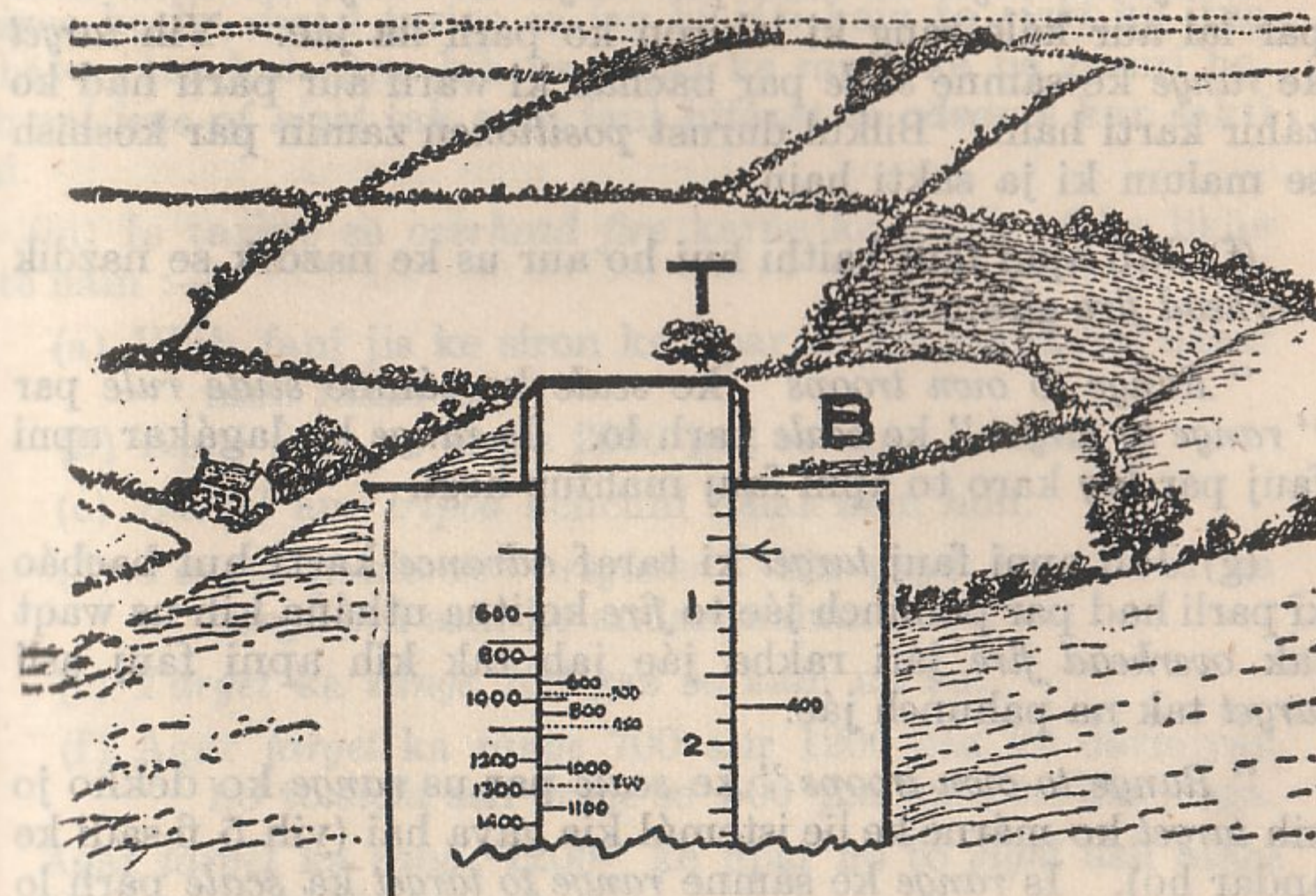
Slide rule niche likhi hui hálaton men istemál kia játa hai :—

(a) Us *reconnaissance* men jis men aisi *position* dekhni ho jis se ham kisi khás *target* par *fire* karen to yih *fire* apni baithi hui faujon ke siron ke upar se guzre.

(b) Is bát ka faisala karne ke lie kih apni faujon ke *advance* ko ham *target* ke kitne nazdik tak hifázat se *overhead fire* de sakte hain. Us khás *target* se apni fauj ki nazdik se nazdik ki *position* ko us *target* ke wáste " bacháo ki parli had " kahte hain.

Yih sawál tajribe aur galati se *slide rule* ko niche die hue tariqe ke mutábiq istemál karte hue hal kia ja sakta hai :—

Fire controller target " *T* " (Shakl 22) se kam fásile par ek nuqta B chunta hai, jis tak kih us ne andáza kia hai kih apni fauj hifázat se *advance* kar sakti hai. Wuh apne *range taker* ko us nuqte aur *target* ke *range* lene ka hukm deta hai. Wuh *slide rule* ko upar *para* 1 ke mutábiq laga leta hai aur B ke *range* ko apni fauj ka *range* mánkar *target* ke *range* ko *range* ke sáth miláta hai. Agar *slide* ka nikla hua hissa XY (Shakl 21) B ki *line of sight* aur T ki *line of sight* ke darmiyán nahin baithta to hamára *fire* B par pahunchne se pahle *gun*on ke nazdik kisi nishán par band ho jána cháhie. Agar yih baithkar kuchh kháli jagah rah jáe to hamári fauj ke *target* ke aur nazdik kisi *point* par pahunchne tak *fire* jári rakha ja sakta hai.

Phir ek aur nuqta *point* B ke is taraf ya us taraf chuna játa hai. Yihi kárrawái duhrái játi hai jab tak kih bacháo ki parli had thik na mil jáe.

Shakl 22.

(c) Jab apni fauj pichhe hat rahi ho to is bát ka faisala karna kih fauj ki chhori hui *position* par *fire* karne se pahle fauj kaunsi *line* se guzar áni cháhie.

Us zamin ka khayál rakhte hue jis par kih *target* ke taur par *fire* karna hai upar *para* (b) men batáe hue tariqe ke mutábiq bacháo ki parli had malum karo.

(d) Jab apni fauj *gun line* se *line of fire* ke sáth sáth *advance* karti hai to is bát ka faisala karna kih wuh kaunsi *line* hogi jis se kih apni fauj ko *fire* khulne se pahle guzar jána cháhie.

Yih *line* us khás *target* ke lie " bacháo ki warli had " kahláti hai.

" *Range to own troops* " ke *scale* par lál rang ki kati hui *line*on ke zarie upar *para* (b) ke mutábiq kám karo.

Niche likhi hui tin hálaton men *slide rule* ki *slide*, choti par kandhon ke sáth mili hui hogi.

(e) Bacháo ki warli aur parli had malum karna, jabkih apni fauj *target* ki *line of sight* par ho.

Range to target ke *scale* par *target* ke *range* ke sáth *slide* par lál aur kále rang ki lakiron ko parh lia jáe. Yih *target* ke *range* ke sámne *slide* par bacháo ki warli aur parli had ko záhir karti hain. Bilkul durust *position*en zamin par koshish se malum ki ja sakti hain.

(f) Jab apni fauj baithi hui ho aur us ke nazdik se nazdik *overhead fire* girána ho.

" *Range to own troops* " ke *scale* ke sámne *slide rule* par " *range to target* " ke *scale* parh lo. Is *range* ko lagákar apni fauj par *lay* karo to apni fauj mahfuz hogi.

(g) Jab apni fauj *target* ki taraf *advance* karti hui bacháo ki parli had par pahunch jáe to *fire* ko itna uthána kih us waqt tak *overhead fire* jári rakha jáe jab tak kih apni fauj asli *target* tak na pahunch jáe.

" *Range to own troops* " ke *scale* par us *range* ko dekho jo kih *target* ko márne ke lie istemál kia gaya hai (yih 5 fi sadi ke andar ho). Is *range* ke sámne *range to target* ka *scale* parh lo kih kya *range* hai. Is *range* ko istemál karte hue *gun*on ko *target* par *lay* karo. Ab apni fauj *target* par pahunchne tak mahfuz hogi.

SABAQ 69—*GUN* KA TARIQA.

Instructor ke lie *note*.

Zaruri sámán :—

***Gun, range table* ya *slide rule*.**

Sikhlái ka tariqa :—*Instructor* is tariqe ke qáidon ka bayán karega aur *sight* ke sáth namuna dete hue batáega kih kis tarah *clearance* hásil hota hai.

Is ke bád *class* zamin par mashq karegi.

1. BAYÁN KARO :—

(i) Yih *advance* karne wáli faujon ko *covering fire* dene ka ek khás tariqa hai. Yih sirf us waqt kám men láya játa hai jabkih *target* ki jagah *line of sight* se káfi *angle* par uthi hui ho. Yih tariqa hamwár zamin par kám men nahin láya játa. Is lie is ka istemál sirf pahári iláqon men kia játa hai, jaise kih " *mountain warfare* " men milte hain.

(ii) Is tariqe ka usul to yih hai kih jab *gun*en *target* ko márne ke lie *direct* tariqe se *lay* ki játi hain to *sight* ko itna utháya játa hai jitna kih us *target* ke *range* ke lie zaruri ho. Ab nai *line of sight* tak apni fauj hifázat se *advance* kar sakti hai.

(iii) Is tariqe se *overhead fire* karne ke qáide niche likhe játe hain :—

(a) Wuh fauj jis ke siron ke upar se *fire* karna ho, nazar men rakhi jáe.

(b) Apni fauj ka *range* 2000 gaz se upar na ho.

(c) *Barrel* aur *tripod* achchhi hálat men hon.

(d) *Target* pahle se " *register* " kia gaya ho ya us ka *range* 5 fi sadi ke andar malum ho.

(e) *Target* ka *range* 700 gaz se kam na ho.

(f) Agar *target* ka *range* 700 aur 1200 gaz ke darmiyán ho to *sight* asli *range* se 500 gaz upar *set* kia jáega.

Agar *target* ka *range* 1200ˣ ke upar ho to *sight* asli *range* se 400 gaz upar kia jáega*.

2. KÁRRAWÁI.

(i) *Fire unit commander range taker* se *target* ka *range* hásil karta hai. Wuh *range* ya *ranges* ka hukm dekar *target* ka bayán karta hai.

Jab *gun*en *target* par *lay* ho chuken to yih hukm deta hai " BACHÁO KI PARLI HAD—*SIGHT* UPAR 500 YA 400 " (jitna kih zaruri ho).

Fire karne wála hukm ke mutábiq *sight* lagáta hai aur dekhta hai kih nai *line of sight* zámin ko kis jagah chhuti hai. Is jagah tak apni fauj hifázat se *advance* kar sakti hai, jabkih *fire* us *target* par jári rakha jáe. *Fire* karne wála is nishán ko *fire* ke daurán men shist *check* karne ke lie " *aiming mark* " ke taur par kám men láega. *Fire* ka pura asar hásil karne ke lie agar *elevation* men *correction* ki zarurat ho to wuh *hand wheel* ke zarie dia jáega.

*In qáidon se apni fauj ke upar utna hi *clearance* milta hai jitna kih *range table* ke Safha 2 aur 3 par dia gaya hai. Yih malum hona cháhie, kih yih tariqe sirf faujon ke *target* ke upar *advance* karne ke lie hi kám men láe játe hain na kih *gun*on ke nazdik wáli faujon ke lie.

(ii) Jab apni fauj bacháo ki parli had par pahunch jáe to agar zarurat ho to Sabaq 68 ke mutábiq kárrawái ki jáe.

NOTE.—*Infantry company* ke jawánon ko yih tariqa Hindustán ki Sarhad ki Laráion men istemál karne ke lie sikháya jáe. Yih *infantry platoon* ki *gun*on se *picquet* ko madad dene ke lie bahut fáidamand sábit hoga.

SECTION 22—*DEFENSIVE FIRE* KE LIE *FIXED LINE*.

1. TARIF (DEKHO SAFHA 1).

2. *DIRECTION* AUR *ELEVATION* QÁIM RAKHNE KE LIE BANDOBAST.

(a) *Aiming peg* se.

(b) *Dial* se.

(c) *Clinometer* se.

(b) aur (c) donon fáltu hain—agar *aiming peg* gir jáe ya utha li jáe to *elevation* aur *direction* phir se *check* ki ja sakti hai aur *aiming peg* dobára lagái ja sakti hai.

3. PAHLE SE MUQARRAR KIA HUA ILÁQA.

Tin hálaten hain jinka khayál kia jáega :—

(a) Pahle se chuna hua *target*, masalan chauráha, darakhton ka jhund, jahán se dushman ke guzarne ki umed ho.

(b) Koi iláqa, masalan darakhton men kháli jagah ya jhárbandi ke sámne khet (dekho Taswir IV).

(c) Kisi *defended locality* ke nazdik se nazdik.

4. QÁIDE.

(a) Jab *gunen fixed line* par *lay* ho jáen to *tripod* ko hargiz nahin hilána cháhie.

(b) *Flanking fire* aur *overhead fire* ke usulon ko yahán bhi kám men lána cháhie (Sabaq 66 aur 67).

5. SAB *FIXED LINE*ON KE LIE ÁM TARTIB YIH HAI :—

(a) *Unload* aur *clear gun* karo.

(b) Niche likhe hue kisi ek tariqe ke mutábiq *gun*on ko *fixed line*on par *lay* karo.

(c) Dialon ko *zero* karo.

(d) *Gun*on ka *elevation check* karo.

(e) *Aiming post* lagáo.

(f) *Bar-foresight* utáro.

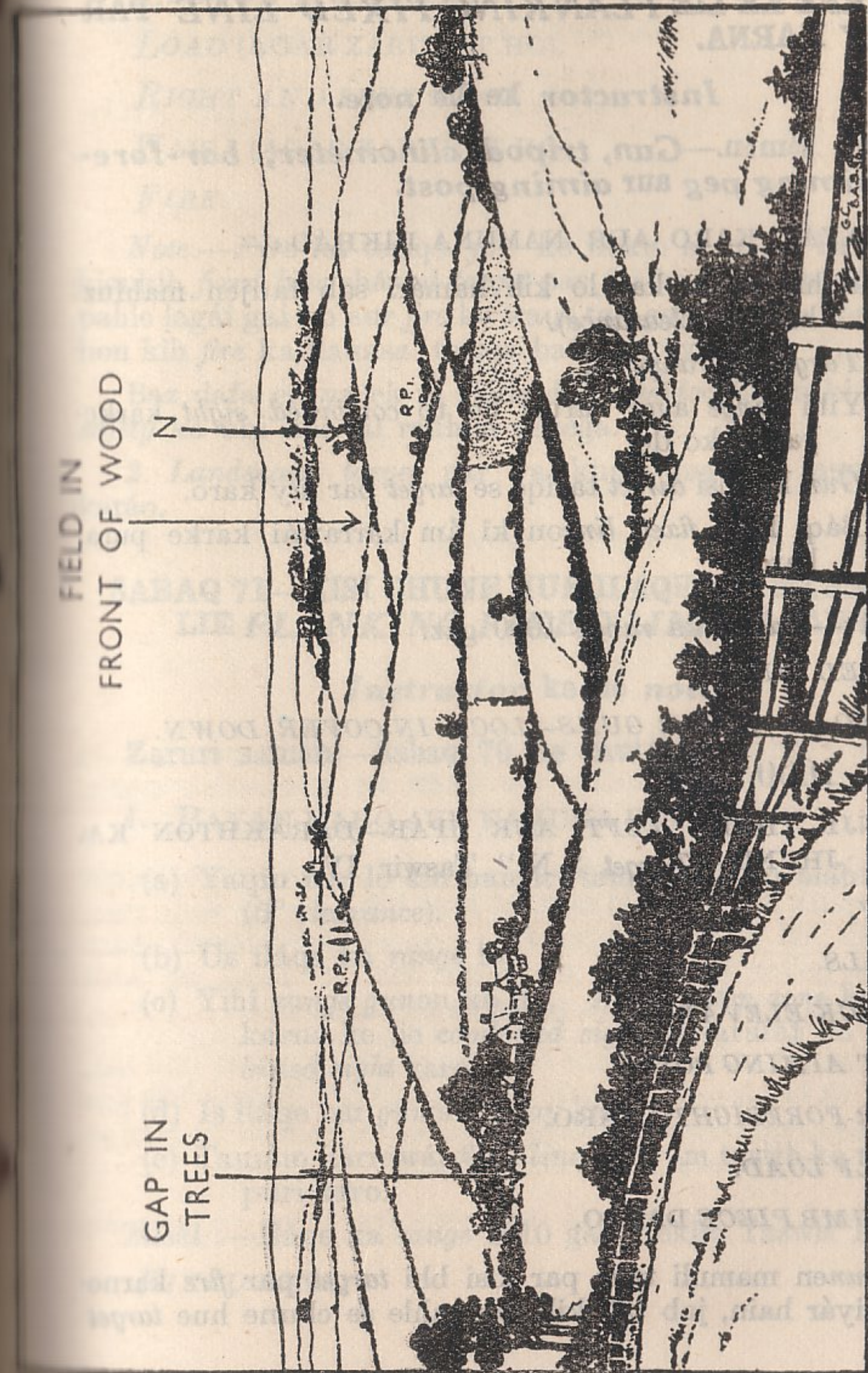
(g) *Half load* karo aur *thumb-piece* dabáo.

Jab *fire* ki zarurat ho to hukm do kih :—

(h) Sab *gunen fixed line*on par *lay* ki jáen.

(i) *Fire* ka tariqa (agar zarurat ho) kya hoga.

(j) Hawa ka haq (agar zarurat ho) kya hoga.

(k) *Fire* ka hukm.

Gap in trees=Darakhton men khâli jagah.
Field in front of wood=Jangal ke sámne khet.

SABAQ 70—PAHLE SE CHUNE HUE *TARGET* KO MÁRNE KE LIE *FLANKING FIXED LINE* PAR *LAY* KARNA.

***Instructor* ke lie *note*.**

Zaruri sámán.—*Gun, tripod, clinometer, bar-fore-sight, aiming peg* aur *aiming post.*

1. BAYÁN KARO AUR NAMUNA DIKHÁO :—

(a) Pahle yaqin kar lo kih hamári sab faujen mahfuz hain (5° *clearance*).

(b) *Target* ka *range* lo.

(c) Yihi *range* agar zaruri ho to *combined sight* karke *gun*on ko do.

(d) *Gun* ko kisi *direct* tariqe se *target* par lay karo.

(e) Báqi kám *fixed line*on ki ám kárrawái karke pura karo.

Misál :—*Target* ka *range* 1000 gaz.

FIXED LINE.

UNLOAD—CLEAR GUNS—LOCK IN-COVER DOWN.

ALL 1000.

GANJI—THORA *LEFT* AUR UPAR—DARAKHTON KA JHUND—(*Target* " N " Taswir IV).

LAY.

DIALS.

CHECK ELEVATION.

OUT AIMING POST.

BAR-FORESIGHT UTÁRO.

HALF LOAD.

THUMB PIECE DABÁO.

Ab *gun*en mamuli taur par kisi bhi *target* par *fire* karne ke lie taiyár hain, jab tak kih *fire* pahle se chune hue *target*

par dálne ki zarurat na ho. Is surat men yih hukm die jáenge :—

ALL—ON FIXED LINES.

LOAD (AGAR ZARURAT HO).

RIGHT AND LEFT 2 TAP.

HAWA (AGAR ZARURAT HO).

FIRE.

Note.—*Fire* ka tariqa *fire* ke hukm se pahle batáya jáe, kionkih *fixed line* sháyad *target* par *fire* karne se chand ghante pahle lagái gai ho aur *fire* ke waqt tak *gun number* bhul chuke hon kih *fire* ka kaunsa tariqa batáya gaya tha.

Baz dafa ek ya ek se ziáda *defended locality*on ki *flanking safety* ka bhi khayál rakhna parega.

2. *Landscape target* par ya khule maidán men mashq karáo.

SABAQ 71—KISI CHUNE HUE ILAQE KO MARNE KE LIE *FLANKING FIXED LINE* LAGÁNA.

***Instructor* ke lie *note*.**

Zaruri sámán.—Sabaq 70 ke mutábiq.

1. BAYÁN KARO AUR NAMUNA DIKHÁO :—

(a) Yaqin kar lo kih hamári tamám faujen mahfuz hain (5° *clearance*).

(b) Us iláqe ka *range* lo.

(c) Yihi *range gun*on ko do. Agar *beaten zone* ko lamba karne ke lie *combined sight* ki zarurat ho to *combined sight* karo.

(d) Is iláqe par *gun*on ko *lay* karo.

(e) Tamám kárrawái *fixed line*on ki ám tartib ke mutábiq puri karo.

Misál :—Iláqe ka *range* 1010 gaz (dekho Taswir IV).

FIXED LINE.

UNLOAD—CLEAR GUNS—LOCK IN—COVER DOWN.

No. 1—950. *No.* 2—1050.

THORA *LEFT*—SÁMNE KA ILÁQA—MAKÁN—*LEFT* KINÁRA.

LEFT 9 BAJE 2 *DEGREE*—DARAKHTON MEN KHÁLI JAGAH.

LAY.

DIALS.

CHECK ELEVATION.

OUT AIMING POST.

BAR-FORESIGHT UTÁRO.

HALF LOAD.

THUMB PIECE DABÁO.

Jab is *fixed line* par *fire* ki zarurat ho to yih hukm do :—

ALL-ON FIXED LINES.

LOAD (AGAR ZARURAT HO).

FIRE.

Note.—*Section* ki donon *gun*en ek hi nuqte par *lay* ki jáengi. Koi bhi *gun* dahne ya báen ko *traverse* nahin karegi.

Ám hálaton men hawa ka *correction* dene ki zarurat nahin hogi, kionkih sirf is bát ki zarurat hogi kih *fire* us iláqe men kisi jagah bhi gir jáe. Agar *fire controller* khayál kare kih hawa golion ko is iláqe se báhar ura le jágei to wuh hawa ka haq *fire* ke hukm se pahle de sakta hai.

800 gaz tak goli ki uncháí ádmi ke qad ke barábar hoti hai, is lie sirf ek hi *elevation* dene ki zarurat hogi. Magar 800 gaz ke upar *beaten zone* ko lamba karne ke lie *gun*on ke *range* men 100 gaz ka farq karke dena cháhie.

2. *Squad* ko khuli zamin ya *landscape target* par mashq karáo.

SABAQ 72—*DEFENDED LOCALITY* KE NAZDIK SE NAZDIK (*FLANKING*) *FIXED LINE* LAGANA.

Instructor ke lie *note*.

Zaruri sámán.—Sabaq 70 ke mutábiq.

1. BAYÁN KARO AUR NAMUNA DIKHÁO :—

(a) Jis *locality* ki hifázat karni ho us ke agle kináre par ek nuqta chunkar us ka *range* lo.

(b) Yih *range gun*on ko do. Agar *beaten zone* ko lamba karne ke lie *combined sight* ki zarurat ho to *combined sight* karo (is par *note* Sabaq 71 men dekho).

(c) Is nuqte par *gun*on ko *lay* karo.

(d) *Bar-foresight* ki madad se *gun*on ko is *locality* se 5° *flank* ki taraf *lay* karo.

(e) Báqi kárrawái *fixed line*on ki ám tartib ke mutábiq karo.

Misál. Chune hue nuqte ka *range* 980 gaz.

FIXED LINE.

UNLOAD—CLEAR GUNS—LOCK IN-COVER DOWN.

No. 1-950, *No.* 2-1050.

THORA *LEFT*—MAKÁN—*RIGHT* KINÁRA.

LAY.

BAR-FORESIGHT CHARHÁO.

LINE OF SIGHT KO DOBÁRA MAKÁN KI SIDH MEN LÁO.

ALL RIGHT 5°.

DIALS.

CHECK ELEVATION.

OUT AIMING POST.

BAR-FORESIGHT UTÁRO.

HALF LOAD.

THUMB-PIECE DABÁO.

Jab is *fixed line* par *fire* ki zarurat ho to yih hukm do :—

ALL-ON FIXED LINES.

LOAD (AGAR ZARURAT HO).

FIRE.

Note.—Section **ki donon *gunen* ek hi jagah *lay* hongi. Koi *gun* bhi *right* ya *left* ko *traverse* nahin karegi.**

2. Khuli zamin ya *landscape target* par mashq karáo.

SABAQ 73—KISI CHUNE HUE *TARGET* KO MARNE KE LIE (*OVERHEAD*) *FIXED LINE* LAGANA.

Instructor **ke lie *note.***

Zaruri sámán.—*Gun, tripod, clinometer, bar-foresight, AIMING PEG, SLIDE RULE* aur *RANGE TABLE.*

1. BAYÁN KARO AUR NAMUNA DIKHÁO :—

(a) *Target* aur apni fauj ka *range* lekar is bát ka yaqin kar lo kih *target* ko márne ke lie niche wála *elevation* istemál karte waqt apni fauj mahfuz hogi.

(b) *Gun* ko *target* ka *range* do ; agar zarurat ho to *combined sight* karo.

(c) *Gun*on ko *target* par *lay* karo.

(d) Báqi kárrawái tamám *fixed line*on ki ám tartib ke mutábiq karo.

MISAL. *Target* ka *range* 1845 gaz. Apni fauj ka *range* 1420. *Line of sight*on men farq 30′.

FIXED LINES.

UNLOAD—CLEAR GUNS—LOCK IN-COVER DOWN

No. 1—1800, *No.* 2—1900.

CHINÁR—*RIGHT* 2 BAJE 2 *DEGREE*—GIRJE KE *RIGHT* JHÁRION KA JHUND.

LAY.

DIALS.

CHECK ELEVATION.

OUT AIMING POST.

BAR-FORESIGHT UTÁRO.

HALF LOAD.

THUMB-PIECE DABÁO.

Jab is *fixed line* par *fire* ki zarurat ho to is tarah hukm do :—

ALL—ON FIXED LINES.

LOAD (AGAR ZARURAT HO).

RIGHT AND LEFT 2 TAP.

HAWA (AGAR ZARURAT HO).

FIRE.

2. Khuli zamin ya *landscape target* par mashq karáo.

SABAQ 74—EK *FIRE* KA PARDA PAHLE SE CHUNE HUE ILÁQE PAR GIRANE KE LIE, *OVERHEAD FIXED LINE* KA IS TARAH LAGANA KIH HAR EK *GUN* TAQRIBAN 25 GAZ KE *FRONT* KO *COVER* KARE.

Instructor **ke lie *note.***

Zaruri sámán.—Sabaq 73 ke mutábiq.

1. BAYÁN KARO AUR NAMUNA DIKHÁO :—

(a) Us iláqe ka aur apni fauj ka *range* lo aur yaqin kar lo kih apni fauj mahfuz hai.

(b) *Gun*on ko iláqe ka *range* do (*combined sight* mat karo).

(c) *Gun*on ko ápas men taqriban 1° ke fásile par do nishánon par *lay* karo.

(d) Tamám *fixed line*on ki kárrawái ke mutábiq báqi kám karo.

MISAL—Iláqe ka *range* 1515 gaz, fauj ka *range* 985 gaz. *Angle of sight* men farq 15 ′.

FIXED LINES.

UNLOAD—CLEAR GUNS—LOCK IN-COVER DOWN.

ALL 1500.

LAY.

NO. 1—*RIGHT* 3°, *NO.* 2—*RIGHT* 2°.

DIALS.

CHECK ELEVATION.

OUT AIMING POST.

BAR-FORESIGHT UTÁRO.

HALF LOAD.

THUMB-PIECE DABÁO.

Jab is *fixed line* par *fire* ki zarurat ho to yun hukm do :—

ALL—ON FIXED LINES.

LOAD (AGAR ZARURAT HO).

RIGHT AND LEFT 2 TAP.

FIRE.

***Note.*—(i) Agar do nishán aise mil saken jin ka darmiyáni fásila koi 1° ho to *gun*en un par *lay* ki ja sakti hain, masalan :—**

CHINÁR—*RIGHT* 4 BAJE 4 *DEGREE*—JHÁRI—*NO.* 1—*LAY* JHÁRI—*LEFT* 9 BAJE—JHÁRION KI *LINE* KA CHHUPÁO—*NO.* 2—*LAY.*

(ii) *Gun*on ko ápas men 1° ke fásile par *lay* karne se aur *right and left 2 tap* karne se *section* taqriban 50 gaz ko *cover* kar lega.

(iii) Hawa ka haq rakhne ki zarurat nahin kionkih agar golián thori dahne ya báen lagen to koi harj nahin, ham ko to sirf us iláqe men ek *fire* ka parda dálna hai.

2. Khuli zamin ya *landscape target* par mashq karáo.

SABAQ 75—*DEFENDED LOCALITY* KE NAZDIK SE NAZDIK APNI FAUJON KI HIFÁZAT KA KHAYÁL RAKHTE HUE, *OVERHEAD FIXED LINE* IS TARAH LAGANA KIH HAR EK *GUN* TAQRIBAN 25 GAZ KE *FRONT* KO *COVER* KARE.

***Instructor* ke lie *note*.**

Zaruri sámán.—Sabaq 73 ke mutábiq.

1. BAYÁN KARO AUR NAMUNA DIKHÁO :—

(a) *Range finder* se *defended locality* ke agle kináre ka *range* lo.

(b) *Slide rule* ya *range table* se wuh kam se kam *range* malum karo, jis se kih hamári fauj ki hifázat ka yaqin hoga.

(c) Yih malum kia hua *range gun*on ko do.

(d) *Locality* ke agle kináre par *gun*on ko ápas men 1° ke fásile par *lay* karo.

(e) Tamám *fixed line*on ki kárrawái ke mutábiq kám karo.

MISAL—Apni fauj ke agle kináre ka *range* 1510 gaz.

FIXED LINES.

UNLOAD—CLEAR GUNS—LOCK IN—COVER DOWN.

ALL 1950.

GANJI—THORA *LEFT* AUR UPAR—DARAKHTON KA JHUND—*LEFT* KINÁRA—*NO.* 1 *LAY*—JHUND *LEFT* 1° JHÁRION KI *LINE* KI MILÁP KI JAGAH —*NO.* 2—*LAY.*

DIALS.

CHECK ELEVATION.

OUT AIMING POST.

BAR-FORESIGHT UTÁRO.

HALF LOAD.

THUMB-PIECE DABÁO.

Jab is *fixed line* par *fire* ki zarurat ho to yih hukm do :—

ALL—ON FIXED LINES.

LOAD (AGAR ZARURAT HO).

RIGHT AND LEFT 2 TAP.

FIRE.

Note.—(i) ***LIFT*** **DENE KI ZARURAT NAHIN.**

(ii) Hawa ke lie ***correction*** ki zarurat nahin, kionkih agar golián thori dahne ya báen giren to koi harj nahin. Ham ko to sirf apni ***defended locality*** ke nazdik se nazdik ek ***fire*** ka parda dálna hai.

2. Khuli zamin ya *landscape target* par mashq karáo.

Section 23—Indirect fire.

Indirect fire ke tariqe se kárgar *fire* tezi se kholna, múkhtalif álon ke istemál men durusti aur *drill* men ála darje ki qábiliyat par munhasir hai. Yih báten sirf ála darje ki sikhlái aur lagátár mashq hi se hásil ho sakti hain.

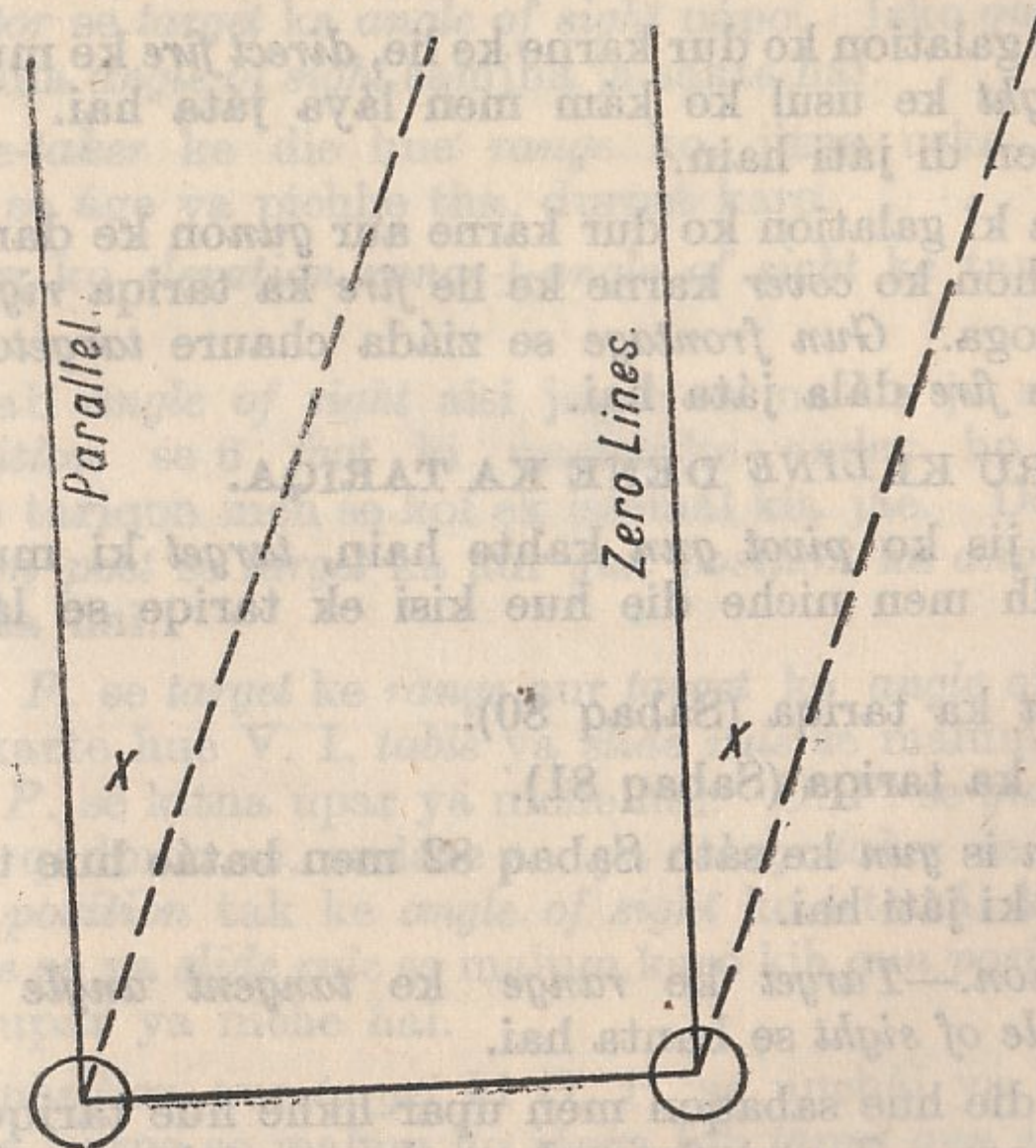
SABAQ 76—AM USUL.

Instructor ke lie ***note.***

Zaruri sámán.—***Black board.***

BAYÁN KARO.

1. *ZERO LINE*.

Mutawázi *lineen* agar ek hi *angle* tak *switch* ki jáen to bhi mutawázi rahti hain. Pas is matlab se kih *fire* ko kisi bhi rukh ko *switch* kia ja sake, *gunen* hamesha mutawázi *zero line* par rakhi játi hain.

Shakl 23.

Parallel=mutawázi.

*Zero line*on ka rukh ám taur par pahla *target* hota hai.

2. *Gun frontage.*

Ám taur par 30 gaz—*gun*en jo kih *parallel line* par hon apne *gun frontage* ke barábar ki chaurái *target* par *cover* karti hain.

3. *Lay* karne ka tariqa.

(a) *Direction—Target* ki thik sidh men ek nazar áne wále *aiming point* ke zarie se.

(b) *Elevation—Quadrant angle* ke taur par *clinometer* se *gun* par lagáya játa hai.

(c) *Direction* aur *elevation* ek *aiming mark* ke zarie qáim rakhe játe hain.

4. *Range* aur *direction* men galatián.

Range ki galation ko dur karne ke lie, *direct fire* ke mutábiq *combined sight* ke usul ko kám men láya játa hai. *Lift*en *minute*on men di játi hain.

Direction ki galation ko dur karne aur *gun*on ke darmiyán ki kháli jaghon ko *cover* karne ke lie *fire* ka tariqa *right and left* 2 *tap* hoga. *Gun frontage* se ziáda chaure *target*on par *switch* karke *fire* dála játa hai.

5. Shuru ki *line* dene ka tariqa.

Ek *gun*, jis ko *pivot gun* kahte hain, *target* ki munásib jagah ki sidh men niche die hue kisi ek tariqe se lái játi hai :—

(a) *Crest* ka tariqa (Sabaq 80).

(b) *Peg* ka tariqa (Sabaq 81).

Dusri *gun* is *gun* ke sáth Sabaq 82 men batáe hue tariqe se mutawázi ki játi hai.

6. *Elevation.—Target* ke *range* ke *tangent angle* jama (ya nafi) *angle of sight* se banta hai.

7. Niche die hue sabaqon men upar likhe hue tariqon ka bayán kia jáega. Zaruri *fire order*on ka pura bayán Sabaq 78 aur *Section* 24 men dia gaya hai aur kám karne ki tartib *Section Drill—Indirect Fire, Section* 14, men di gai hai.

SABAQ 77—*ELEVATION* HASIL KARNA.

***Instructor* ke lie *note*.**

Zaruri sámán.—*Black board, range table, director*.

Sikhlái ka tariqa.—Kám ki tartib kamre men bayán ki jáegi. *Squad* ko misálen de dekar mashq karái jáegi aur khule maidán men mukhtalif qism ke *target* bata batákar sikhlái puri ki jáegi.

Bayán karo.

Elevation niche die hue kisi ek tariqe se hásil kia játa hai :—

(a) Jab *target* ka *angle of sight* kisi aisi jagah se lia ja sake jo *gun position* se 6 *foot* ki unchái ke andar ho aur *gun position* se 150 gaz se ziáda dur na ho.

Director se *target* ka *angle of sight* nápo. Isko *gun position* hi se lia hua *angle of sight* samjha ja sakta hai.

Range-taker ke die hue *range* ko, jitna uska ála *gun position* se áge ya pichhe tha, durust karo.

*Gun*on ko *elevation range*±*angle of sight* ke taur par dia jáega.

(b) Jab *angle of sight* aisi jagah se na lia ja sake jokih *gun position* se 6 *foot* ki unchái ke andar ho to niche likhe hue tariqon men se koi ek istemál kia jáe. Donon men *observation post* se *target* ka aur *gun position* ka *angle of sight* lena parta hai.

(i) *O. P.* se *target* ke *range* aur *target* ke *angle of sight* ko istemál karte hue V. I. *table* ya *slide rule* se malum karo kih *target O. P.* se kitna upar ya niche hai. *O. P.* se *gun position* ka fásila qadmon se, andáze se, ya *range-taker* se hásil karo aur *gun position* tak ke *angle of sight* ko istemál karte hue, V. I. *table* se ya *slide rule* se malum karo kih *gun position O. P.* se kitni upar ya niche hai.

Gun position aur *target* ki *O. P.* se unchái ya nichái ka muqábala karne se malum ho jáega kih *target gun position* se kitna upar ya niche hai.

Isko V. I. *table* ya *slide rule* se *angle of sight* men tabdil karo.

Misál :—

O. P. se *target* ka *angle of sight—depression*......22′.

O. P. se *gun position* ka *angle of sight—depression* 2° 22′..

O. P. se *target* ka *range* 1700 gaz.

O. P. se *gun position* ka fásila 80 gaz.

Gun position se *target* ka *range* 1750 gaz.

Target O. P. se 11 gaz niche hai (yane 22′—1700 gaz par jitne ke barábar hai).

Gun position O. P. se 3 gaz niche hai (yane 2° 20′—80 gaz par jitne ke barábar hai).

Is lie *target gun position* se (8 gaz niche hai.)

V. I. *table* ya *slide rule* se *angle of sight* (8 gaz—1750 gaz par)=*depression* 16′.

(ii) *Target* jitna *gun position* se upar ya niche hai upar (i) ke mutábiq malum karo.

Range table ke Safha 15 par die hue *graph* se, *target* jitna kih *gun position* se niche ya upar hai, us ke sámne aur zaruri *range* ke niche Q. A. parh lo.

SABAQ 78 —*FIRE ORDER-INDIRECT*.

Instructor ke lie *note*.

Zaruri sámán.—*Black board, range table.*

***Squad* ko yih sabaq *lecture* ke taur par sikhána cháhie.**

1. BAYÁN KARO.

Indirect fire order ki tartib yih hogi :—

(a) *Elevation* (ya *elevationen*).

(b) *Crest clearance drill* (*Gunon* ka *in-charge* uhdadár).

(c) *Out aiming post* (ya *pick up gun aiming mark*).

(d) *Gunen load* karne ke lie taiyár hain (*Gunon* ka *in-charge* uhdadár).

(e) *Load*.

(f) *Fire* ka tariqa.

(g) Bagali ya pahlu ki hawa ka haq.

(h) *Fire* ki raftár (agar *rapid* ho).

(i) *Fire* ka hukm.

2. UPAR KE HUKMON KE LIE *NOTE*.

(a) *Elevation* (Sabaq 77).

(i) Pahle " *ELEVATION ALL* (ya *No.* 1 wagaira) " bola jáega.

(ii) *Angle* nazdik se nazdik ke 5 *minute*on tak dia jáega.

(d) *Gun*en *load* karne ke lie taiyár hain.

*Gun*on ka *in-charge* uhdadár *report* nahin dega jab tak us ne yaqin na kar lia ho kih *No.* 3 *gun*on ke pichhe a gae hain.

(f) *Fire* ka tariqa.

Hukm is tarah dia jáega :—

" *RIGHT* AUR *LEFT* 2 *TAP* ".

(g) Pahlu ki hawa ka haq.

(i) Pahle " **HAWA** " bola jáega aur hukm *degree* aur *minute*on men nazdik se nazdik ke 5 *minute* tak dia jáega.

(ii) Dia hua haq *bar-foresight* par lagáya jáega.

(iii) Hawa ka haq *bar-foresight* par lag chukne ke bád *No.* 1 *gun* ko us waqt tak *tap* karega jab tak kih use *bar-foresight* ke *blade* se *aiming post* par sahih shist na mil jáe.

3. *FIRE* KE DAURÁN MEN HUKM.

(a) ***Liften***

*Minute*on men di jáengi jokih *range table* ke Safha aur khána 3 se malum ki jáengi aur is tarah se di jáengi :—

" *ALL*—UPAR....*MINUTE*."

Yih hukm ya to zabáni ya isháre se dia jáega, jaisa kih niche *sub-para* (b) (ii) men dia gaya hai.

(b) ***Ranging correction.***

(i) *Direction.*

Zaruri *switch* waqt ke liház se *director*, durbin ya *slide rule* se nápe jáenge. Yih *correction* zabáni di ja sakti hai ya niche likhe hue *semaphore* ke isháre istemál kie ja sakte hain.

T . . . . . *Right* 30′

L . . . . . *Left* 30′

Correcti ko dugna karne ke lie ya barháne ke lie *code letter* ko z ırat ke mutábiq duhráya jáe.

(ii) *Elevation.*

Fire controller zaruri *correction* ka 100 gazon men andáza karta hai aur natije ko *minute*on men batáta hai :—

All upar ya niche . . . *minutes*

Yih hukm *semaphore* ke isháron ke zarie se bhi is tarah dia ja sakta hai :—

U . . . . . Upar 10′

N . . . . . Niche 10′

Correction ko dugna karne ke lie ya barháne ke lie " *Code letter* " ko zarurat ke mutábiq duhráya jáe.

Agar *fire* ke daurán men yih dekha jáe kih koi *gun* ya *gun*en dusron ke muqábale men upar ya niche *fire* kar rahi hain to " *check elevation* " ka hukm dia jáega.

SABAQ 79—*INDIRECT FIRE* SE *TARGET* MARNE KA TARIQA.

Instructor* ke lie *note.

Zaruri sámán.—*Black board, range table slide rule*

Yih sabaq *lecture* ke taur par sikháya jáega.

1. *Target*on ki qismen.

(a) *Gun frontage* ke barábar ya us se kam, gahrái wála ya bagair gahrái wála.

(b) *Gun frontage* se bara, bagair gahrái wála ya gahrái wála.

2. *Target* márne ke tariqe—

(a) *Direction* :—

(i) Wuh *target* jo *gun frontage* ke barábar ya kam hon. *Gun*on ko *target* ke donon taraf mutawázi *line* par *lay* karo.

(ii) *Target* jo *gun frontage* se chaure hon.—*Gun*on ko mutawázi *line* par is tarah *lay* karo kih *pivot gun target* ke ek kináre par *lay* ho. Jab *target* ka yih hissa mára ja chuke to *gun*on ko itne *angle* tak *switch* karo jitna kih *gun frontage*, *target* ke *range* par banáta hai.

(b) *Elevation*—

(i) Bagair gahrái ke *target*—

*Gun*on ko niche wále Q. A. se shuru karo (*range* ke liház se agar *combined sight* karna ho) aur 100 gaz ke barábar *minute*on men *lift* do.

(ii) Jab *target* men gahrái ho—

Shuru men sab *gun*on ko niche wála *Q. A.*, jo kih *target* ki nazdik ki had ko márne ke lie zaruri hai, do. Bád men 100 gaz ki *lift*en *minute*on men dete jáo jab tak kih *target* ki dur ki had ko márne ke lie sab se ziáda *elevation* tak na pahunch jáo. Agar *angle of sight* men 20′ se ziáda farq ho to ek fáltu *lift* 100 gaz ki, *minute*on men do.

*Indirect fire order*on ki misálon ke lie dekho *Section* 24.

SABAQ 80—*CREST* KA TARIQA.

***Instructor* ke lie *note*.**

Zaruri sámán.—*Tripod* aur *indirect fire* ka sámán.

Sikhlái ka tariqa.—Is ke usul kamre ke andar sikháe jáen. Bád men *instructor* khuli zamin par mashq karáe.

1. BAYÁN KARO.

Yih tariqa us waqt istemál kia ja sakta hai jab kih *gunen* uthi hui zamin (*crest*) ke bilkul nazdik aur pichhe *action* men hon aur *target* agarchih *gun position* se nazar na áta ho, lekin *fire controller* ya *gun line* ka *in-charge* uhdadár *target* ko *gun*on se thik pichhe taqriban 25ᵡ ke andar kisi jagah se dekh sakta ho.

2. KÁRRAWÁI.

Jab *gunen mount* ho jáen to *fire controller* ya *gun line* ka *in-charge* uhdadár *pivot gun* ke pichhe us se munásib fásile par khara hokar ya *kneeling position* se *No.* 1 ko " *head aside*" ka hukm deta hai. Phir wuh *No.* 1 ko *tap right* ya *left* karne ka hukm deta hai, jab tak kih *gun target* ki durust *position* par *lay* na ho jáe. (Dekho Sabaq 46).

SABAQ 81—*PEG* KA TARIQA.

***Instructor* ke lie *note*.**

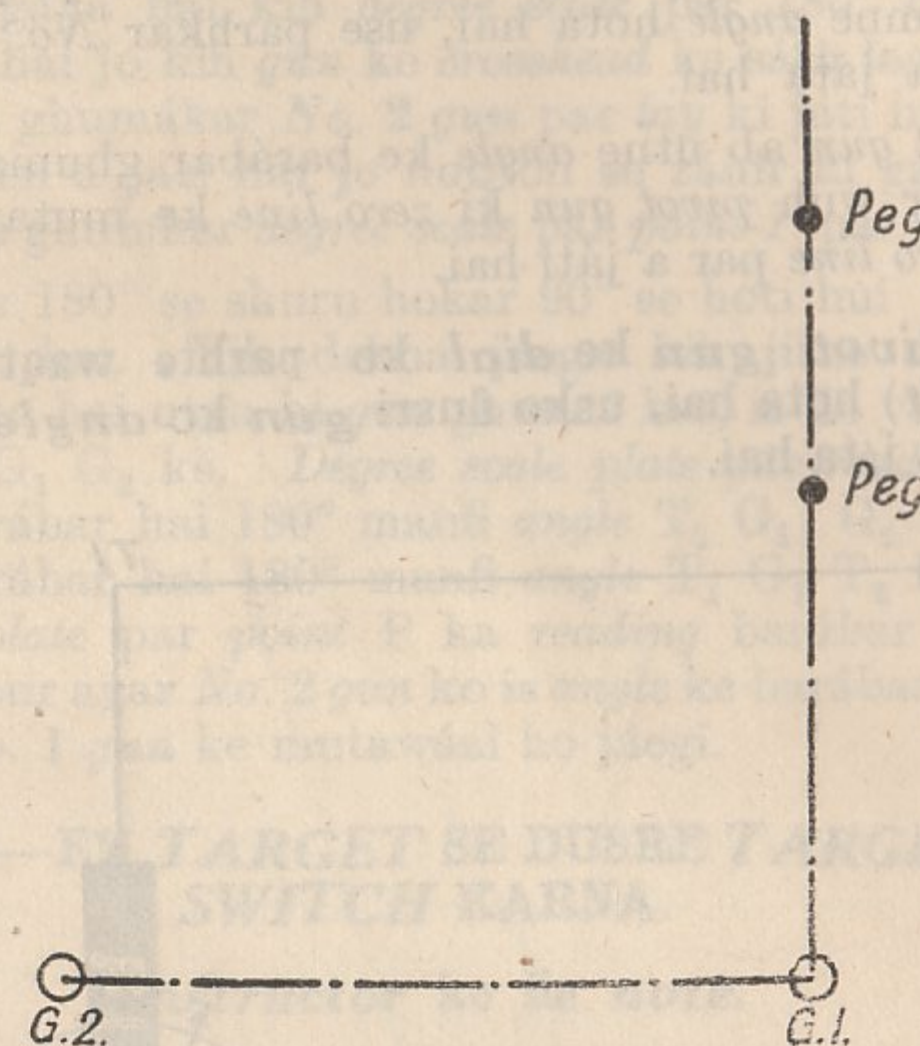
Zaruri sámán.—Do *gunen*, do *tripod, indirect fire* ka sámán, 4 *pegen* aur *black board*.

Sikhlái ka tariqa.—Sabaq 80 ke mutábiq.

1. KÁRRAWÁI.

Pivot gun ke lie *target* ke munásib hisse ki sidh men do ya do se ziáda *pegen* lagái játi hain (Shakl 24).

Wuh is tarah se lagái jáengi kih unke bich ki *line, pivot gun* ki chuni hui *position* se guzar jáe. Donon *pegen* aur agar do se ziáda istemál ki gai hon to un men se koi do, *gun position* se *gun* ki uncháí se nazar áni cháhien.

Jab *gunen* lái játi hain, to *pivot gun pegen* ki sidh men *mount* ki játi aur un par *lay* ki játi hai.

Shakl 24.

SABAQ 82—*GUN*ON KO MUTAWAZI KARNE KA TARIQA.

***Instructor* ke lie *note*.**

Zaruri sámán.—*Black board*, do *gunen* mae *tripod* ke, do *pegen* aur *indirect fire* ka sámán.

Sikhlái ka tariqa.—Ám usul kamre ke andar bayán kia jáega aur phir *instructor* har ek ko khule maidán men mashq karáega.

KÁRRAWÁI.—(Jabkih *No.* 1 *gun, pivot gun* ho).

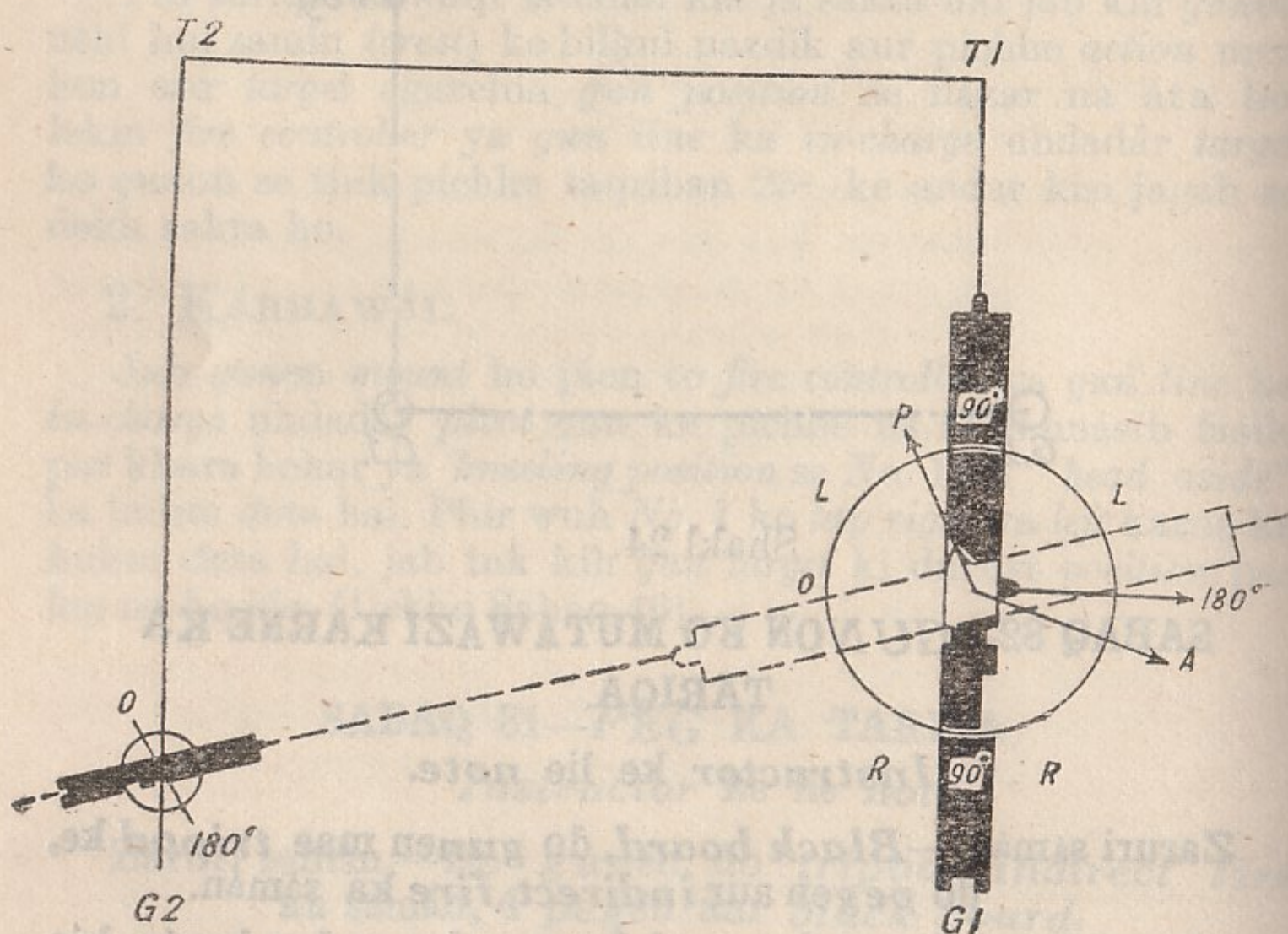
(i) *Pivot gun* apne munásib *target* par *lay* ki játi hai.

(ii) *Pivot gun* ka *dial* 180° par lagáya játa hai.

(iii) *No.* 2 *gun* ko *pivot gun* ke *socket* ke bich men *lay* karke uska *dial zero* kia játa hai.

(iv) *Pivot gun* phir ghumákar *No.* 2 *gun* ke *socket* ke bich men *lay* ki játi hai. *Dial* par jo *pointer* ke sámne *angle* hota hai, use parhkar *No.* 2 *gun* ko dia játa hai.

(v) *No.* 2 *gun* ab utne *angle* ke barábar ghumái játi hai aur wuh *pivot gun* ki *zero line* ke mutawázi apni *zero line* par a játi hai.

Note.—Pivot gun **ke *dial* ko parhte waqt jo rukh (*right* ya *left*) hota hai, usko dusri *gun* ko *angle* dene se pahle ulta kia játa hai.**

Shakl 25.

USUL.

G_1 *pivot gun* hai jo kih *target* T_1 T_2 ke dahne kináre par *lay* ki gai hai. *Line* G_1G_2 *No.* 1 *gun* aur *No.* 2 *gun* ko miláti hai. Ab G_1 T_2 ko G_1 T_2 ke mutawázi karna hai.

Agar *angle* T_1 G_1 G_2+*angle* T_2 G_2 T_1 barábar hai 180° tab G_2 T_2 T_1 mutawázi hai G_1 T_2 ke. Is lie *angle* T_1 G_1 G_2 barábar hai 180° manfi *angle* T_2 G_2 G_1.

No. 1 *gun* ki *position*, jabkih wuh *target* ke dahne kináre par *lay* ki gai hai, kále rang se záhir ki gai hai. Is ka *dial* is tarah *set* kia gaya hai kih *degree scale* par 180° us *pointer* (A) ke sámne hai jo kih *gun* ke *crosshead* ke sáth lagáya gaya hai. Jab *gun* ghumákar *No.* 2 *gun* par *lay* ki játi hai to wuh us *position* men a játi hai jo nuqton se záhir ki gai hai aur *pointer* 180° se ghumkar *degree scale* par *point P* par a jáega.

Dgree scale 180° se shuru hokar 90° se hoti hui báin taraf 0° tak chalti hai. Yih dekha jáega kih jitne *angle* tak *pointer* ghumta hai utna hi *gun* ghumti hai, is lie yih barábar hai *angle* T_1 G_1 G_2 ke. *Degree scale plate* par *reading* jo kih P par hai barábar hai 180° manfi *angle* T_1 G_1 G_2 ke, magar T_2 G_2 G_1 barábar hai 180° manfi *angle* T_1 G_1 T_2 ke. Is lie *degree scale plate* par *point* P ka *reading* barábar hai *angle* T_2 G_2 G_1 ke, aur agar *No.* 2 *gun* ko is *angle* ke barábar ghumáya jáe to yih *No.* 1 *gun* ke mutawázi ho jáegi.

SABAQ. 83—EK *TARGET* SE DUSRE *TARGET* TAK *SWITCH* KARNA.

Instructor ke lie ***note.***

Zaruri sámán.—***Black board,*** ek ***gun*** aur ***tripod, aiming post*** aur ***director.***

Sikhlái ka tariqa.—Mazmun ka usul ek *lecture* ke taur par sikháya jáega aur *instructor* bád men khule maidán men alahida alahida mashq karáega.

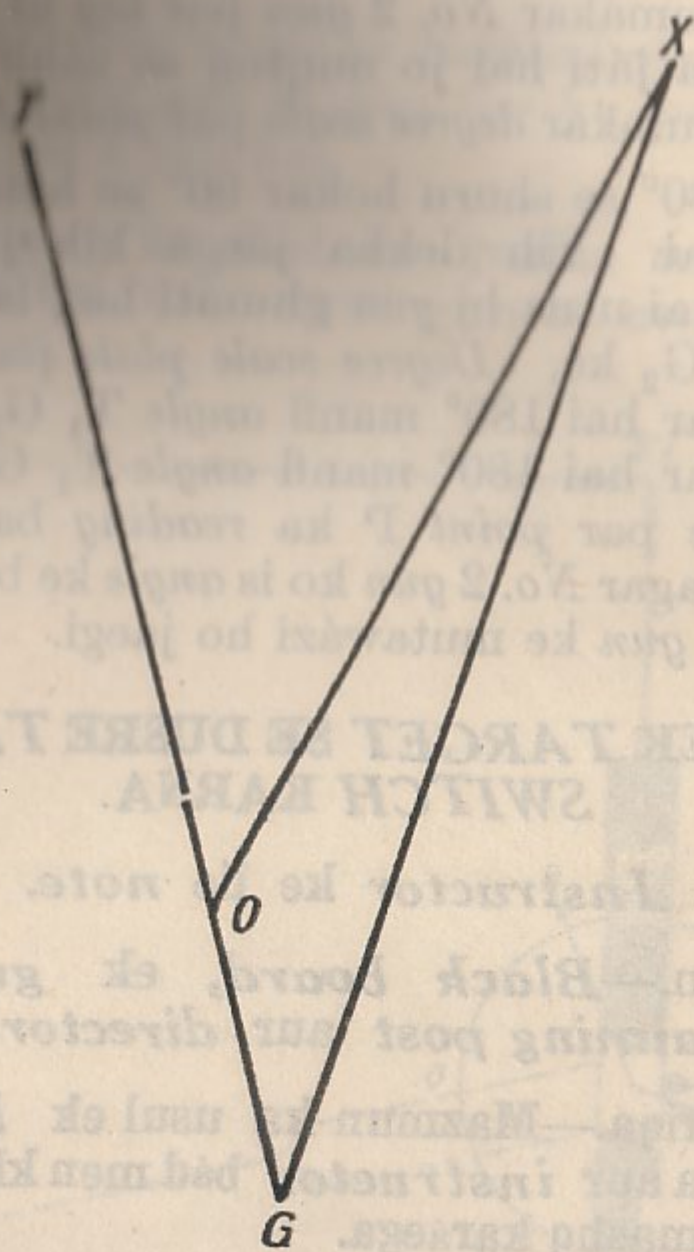
Angle of switch ko *director*, durbin ya *slide rule* ke zarie nápa ja sakta hai. Jahán se yih nápa játa hai wuh jagah *gun*on ke darmiyán mutawázi *line*on men honi cháhie, cháhe yih *gun line* ke áge ho ya pichhe.

Jab *angle of switch* kisi aisi jagah se nápa jáe jo *gun*on se 50^x se ziáda dur na ho, to hásil kia hua *angle* taqriban tamám kámon ke lie káfi durust hoga, aur yih *angle gun*on ko dia jáega :—

Jab kabhi *angle* kisi aisi jagah se nápa jáe, jo *gun* se 50^x se ziáda dur na ho to yih *angle* káfi durust nahin hoga, aur is lie niche likha hua hisáb kia jáega :—

(a) *Angle* TOX nápo (jahán X naya *target* hai).

(b) Malum karo kih *range* OX par yih *angle* kitne gaz ke barábar hai.

(c) Malum karo kih yih gaz *range* GX par kis *angle* ke barábar hai, aur yihi *switch gun*on ko dia jáega.

Shakl 26.

SABAQ 84—*CREST CLEARANCE.*

Instructor* ke lie *note.

Zaruri sámán.—*Black board, range table, director, gun tripod* aur *clinometer.*

Sikhlái ka tariqa.—Tariqa kamre ke andar bayán kia jáega. *Squad* misálon se mashq karega aur mukhtalif qism ke *target*on par khule maidán men sikhlái di jáegi.

1. Bayán.

Fire controller ki yih sab se pahli zimmawári hai kih golián *gun* ke sámne *crest* ke upar se guzarti hon. Jab wuh *gun position* chune to usko yaqin kar lena cháhie kih golián *target* ya *target*on ko márne ke lie, *crest* ke upar se guzrengi.

Gun position ki dekhbhál ke daurán men hamesha yih zaruri ya mumkin na hoga, kih amali taur par *crest* ke upar se golián guzárne ke lie nápkar hisáb kia jáe. Mashq se aksar andáza ho jáega kih *crest* ke pichhe kitni dur *gun position* ho tákih goli *crest* par na lage. Agar *range* kam ho aur *crest* khari ho to *gun*on ko láne aur *gun position* ka faisala karne se pahle *clearance* ko niche ki likhi hui báton ke mutábiq *check* kar lia jáe.

Iski ákhiri zimmawári *gun position* ke *in-charge* uhdadár par hogi. Usko is bát ka yaqin kar lena cháhie kih jab *gun*en *direction* aur *elevation* ke lie *lay* ho chuken to tab tak koi bhi *gun fire* na kare jab tak uski golián *crest* ke upar se na guzarti hon. Is ke bád mauqa milte hi wuh kam se kam *quadrant angle* malum karega jis se *crest clear* ho, aur iski *report fire controller* ko dega. Us ko *check* karna cháhie kih us se koi kam *quadrant elevation gun*on par na lagáya jáe.

Jis *crest* ke upar se *fire* karna ho, hisáb hamesha uski sab se unchi jagah se karna cháhie.

Minimun quadrant angle ke malum karne ka tariqa, *gun*on ki *position* lene se pahle ya bád men, aur sáth hi is bát ko dekhne ka tariqa kih áya golián *crest* ke upar se guzrengi ya nahin jab kih *gun*on ko shuru ka *direction* aur *elevation* dia ja chuke, niche likha gaya hai.

2. (a) Jab *crest gun position* se 150 gaz tak ke fásile par ho :—

Is hálat men *axis of the bore* aur *trajectory* ko *crest* ki choti tak ek hi samjha ja sakta hai, yane goli ke lie niche girne ke wáste kuchh waqt nahin hai.

(i) *Crest* ka *minimum quadrant angle* malum karna :—

Agar *axis of the bore crest* par *lay* ki jáe to bich wáli goli aur *cone* ka nichla hissa *crest* par girega. *Cone* ke nichle ádhe hisse aur 150 gaz ke bahut chhote se *tangent angle* ke

lie zaruri hai kih *gun crest* se kam se kam 15 *minute* upar *lay* ki jáe.

Kárrawái.

Director ko *gun* ki unchái ke mutábiq *mount* karke *crest* ke sab se unche hisse ka *angle of sight* náp lo. *Cone* ke ádhe nichle hisse wagaira ke lie 15 *minute* ko *angle of sight* men jama karo. Is *angle* ka muqábala *target* ke *quadrant angle* se karo. Agar *target* ka *quadrant angle, crest* ke is *angle* ke barábar ya is se bara ho, to *crest* ke upar se golián guzrengi.

Agar *gunen position* men hon aur *gun* par 400 gaz *sight* lagákar *crest* par *lay* kia jáe, to *clinometer* se *gunon* ka jo *elevation* nápa hai wuh us *crest* ka *quadrant angle* samjha ja sakta hai.

(ii) Jab *gunen direction* aur *elevation* ke lie *lay* ho jáen to is bát ko malum karna kih golián *crest* ke upar se guzrengi ya nahin.

Sight ko 400ˣ par lagáo, agar *line of sight crest* ke upar se guzarti hai to golián bhi *crest* ke upar se guzrengi.

Is se, *cone* ke ádhe nichle hisse aur is bát ka kih jab *sight zero* par hon to *line of sight barrel* se thori upar hoti hai, farq nikal játa hai.

(b) *Crest* jabkih *gun position* se 150 gaz se ziáda fásile par ho.

(i) *Crest* ko guzárne ke lie *minimum quadrant angle* ka malum karna.

Agar yih zaruri ho kih bich wáli goli *crest* par lage, to *crest* ka *angle of sight*+*crest* ke *range* ke *tangent angle* ka *quadrant angle gun* par lagáo. Jab aisa kia jáe to *range taker* ki 5 fi sadi galati dur nahin hogi, aur *cone* ka ádha nichla hissa *crest* par lagega.

Kárrawái.

Range finder se *crest* ka *range* malum karo. Is men 5 fi sadi jama kia jáega. Ab jo *range* ban gaya ho uska *tangent angle range table* se dekho aur phir is *range* par *cone* ke nichle hisse ki gahrái dekho.

Crest ki sab se unchi jagah ka *angle of sight* lo. Yih jama ya manfi ho sakta hai.

Upar wále tin *angle*on ko milákar zaruri kam se kam *quadrant angle* milega.

Target ko márne ke lie is *angle* ka muqábala *quardrant elevation* se karo. Agar *target* ka *Q. A. crest* ke *M. G. A.* ke barábar ya us se bara hai to *crest* ke upar se golián guzrengi.

Agar *gunen position* men hon to yih *minimum quadrant angle* is tarah se bhi malum kia ja sakta hai :—

Crest ke *range* men 200 gaz jama karo, is *range* ko *sight* par lagákar *gun foresight* se *crest* par *lay* karo. Tab *clinometer* se *quadrant angle* ko náp lo. Yih *crest* ka kam se kam *quadrant angle* hoga.

(ii) Jab *gunen direction* aur *elevation* ke lie *lay* ho jáen to is ke bád malum karna kih *crest* ke upar se golián guzrengi ya nahin.

Range finder se *crest* ke hásil kie hue *range* men 200 gaz jama karo. Ab jo *range* mile usko *gun sight* par lagákar dekho kih *line of sight crest* ke upar hai ya nahin. Is 200 gaz men *range taking* ki 5 fi sadi galati aur *cone* ke ádhe nichle hisse ka haq shámil hai.

SABAQ 85 *INDIRECT FIRE* KARTE WAQT *OVERHEAD FIRE*.

Instructor ke lie *note*.

Zaruri sámán.—*Slide rule, range table* aur *director*.

Sikhlái ka tariqa.—Mukhtalif tariqon ka bayán kamre ke andar kia jáega, tab *class* khuli zamin par mashq karegi.

***Instructor* amali sawál dega.**

Bayán.

(a) *Fire controller* is bát ka zimmawár hai kih wuh *gun position* aisi chune jahán se *target* par *fire* ho sake aur apni faujon ko koi khatra na ho.

(b) *Indirect fire* men *gun position* se apni fauj aur *target* ki *position* nazar nahin a sakti. Is lie *overhead fire* ke usulon

ko amal men láne ke lie *O. P.* usi muáfiq hona cháhie, jaisa kih Sabaq 67 ke mutábiq *control post* tha. Agar *O. P.* ki unchái *gunon* se 6 *foot* se ziáda ho to *overhead fire* nahin dia ja sakta.

(c) *Overhead* ka sawál ab do tariqon se hal ho sakta hai :—

(i) *Slide rule* ke istemál se, jo kih bilkul usi tarah kám men láya játa hai jaise kih *direct fire* (Sabaq 68) men batáya gaya hai.

(ii) *Gunon* se apni fauj tak ka *safety angle* malum karo. Fauj ka *angle of sight* nápo. Is *safety angle* men yih *angle of sight* jama ya manfi karo, is bát ka khayál rakhte hue kih áya fauj ka *angle of sight elevation* hai ya *depression*. Ab is kam se kam *quadrant elevation* ka muqábala *target* ke sab se niche wále *quadrant elevation* se karo. Agar *target* ka sab se niche wála *quadrant angle* fauj ke kam se kam *quadrant angle* ke barábar ya us se bara ho to fauj mahfuz hogi.

SECTION 24—*INDIRECT FIRE ORDER*ON KI MISÄLEN.

1. *TARGET GUN FRONTAGE* SE KAM CHAURA, BAGAIR GAHRÁI KE—

Range guns—target, 1600 gaz.

Angle of sight 30′ *elevation*.

Fire controller	**Gun position ka in-charge uhdadár.**
ELEVATION.	
ALL—DO *DEGREE* PÁNCH PÁNCH *MINUTE*.	
OUT AIMING POSTS (YA *PICK UP GUN AIMING MARKS*).	
	*GUN*EN *LOAD* KARNE KE LIE TAIYÁR HAIN.
LOAD.	
RIGHT AND LEFT 2 *TAP*.	
HAWA (AGAR ZARURAT HO).	
FIRE.	
STOP.	
ALL—UPAR 20 *MINUTE*—*GO ON*.	

2. *TARGET GUN FRONTAGE* KE BARÁBAR, AUR 200 GAZ GAHRÁI.

Range guns—target (nazdik ka kinára) 1465 gaz, *guns—target* (dur ka kinára) 1640 gaz.

Angle of sight nazdik ka kinára 11′ El., dur ka kinára 15′ El.

Fire controllor.	*Gun position* ka *in-charge* uhdadár.
ELEVATION.	
ALL—DO *DEGREE* EK SIFR *MINUTE.*	
OUT AIMING POSTS (YA *PICK UP GUN AIMING MARKS*).	
	GUNEN LOAD KARNE KE LIE TAIYÁR HAIN.
LOAD.	
RIGHT AND LEFT 2 *TAP.*	
HAWA (AGAR ZARURAT HO).	
FIRE.	
STOP—ALL—UPAR 20 *MINUTE.*	
GO ON.	
STOP — ALL — UPAR 20 *MINUTE.*	
GO ON.	

3. *TARGET GUN FRONTAGE* SE ZIÁDA, BAGAIR GAHRÁI KE—

Range guns—target 1810 gaz.

Target ki chaurái 1° 30′. *Angle of sight* 22′ El.

Fire controller	*Gun position* ka *in-charge* uhdadár.
ELEVATION.	
ALL—TIN *DEGREE* TIN SIFR *MINUTE.*	
OUT AIMING POSTS (YA *PICK UP GUN AIMING MARKS*).	
	GUNEN LOAD KARNE KE LIE TAIYÁR HAIN.
LOAD.	
RIGHT AND LEFT 2 *TAP.*	
HAWA (AGAR ZARURAT HO).	

FIRE.

STOP.

ALL—UPAR 25 *MINS.*		*ALL—LEFT* EK *DEGREE.*
GO ON.		*GO ON.*
STOP.		*STOP.*
ALL—LEFT EK *DEGREE.*		*ALL*—UPAR 25 *MINS.*
GO ON.	YA	*GO ON.*
STOP.		*STOP.*
ALL—NICHE 25 *MINS.*		*ALL—RIGHT* EK *DEGREE*
GO ON.		*GO ON.*
STOP.		*STOP.*

Section 25—*Night firing* (Rát ke waqt *fire* karna).

1. Is *section* men rát ke waqt *target* márne ke lie bandobast batáe gae hain. Yád rakhna cháhie kih yih bandobast, sáf nazar na áne wále mausim yane dhund, dhuen aur gard ki hálaton men bhi kám men láe ja sakte hain.

2. *Night firing* ka sab se ásán tariqa yih hai kih *gunen* din ke waqt *direct* ya *indirect* tariqe se *position* men lái jáen, *target* par *lay* ki jáen aur *aiming pegen* sámne lagái jáen.

3. Andhera hone se pahle, tamám báten, jo kih mukhtalif *targeton* ko márne ke wáste malum honi zaruri hain, hásil karni cháhien.

In men niche likhi hui báton men se kuchh ya sab báten shámil hain :—

Mukhtalif *targeton* ke *range* aur unke *angle of sight*.

Targeton ki chaurái, *angle* ke taur par.

Angle of switch.

Kisi maujuda ya mumkin hifázat ke sawál se taalluq rakhne wáli báten jo malum honi cháhien.

4. Jab *fire* apni *forward localityon* ki *positionon* ke pichhe se kia jáe, to khás ihtiyáten, masalan *sentryon* ka lagána, ya khatarnák iláqe ke gird tár lagána, amal men lái jáen ; tákih apni faujen jab *gun position* ke pás se guzren to unki salámati ka yaqin ho sake.

SABAQ 86—DIN KE WAQT DEKHBHAL.

***Instructor* ke lie *note*.**

Zaruri sámán.—*Gun pegen*, *direction pegen* aur *director*.

Sikhlái ka tariqa.—Ek ásán larái ki hálat batái jáegi aur kám karne ka tariqa bayán kia jáega. *Squad pegon* ke lagáne ki mashq karega.

1. Agar *gun position* se *target* dikhái deta ho :—

(a) *Gun peg* ke zarie *pivot gun* ki *position* lagáo.

(b) *Pivot gun* ke lie ek *direction peg* laga do, jo kih *gun peg* aur usi *gun* ke *target* par durust *lay* karne ki jagah ki *line* ke ain bich men ho. Ab dusri *gun* ke wáste *gun* aur *direction peg* lagáne ki zarurat paregi jo kih *pivot gun* ki *pegon* ki mutawázi *line* par lagái jáengi.

(c) Agar *pivot gun No.* 1 *gun* ho.

(i) *Director* ko *pivot gun* par laga do aur *direction peg* par is tarah *lay* karo kih tir 0° ke sámne a jáe.

(ii) *Director sight* ko 90° ke *angle* tak báin taraf ghuma do, ab jo *line of sight director* ke bich se dekhte hue banti hai, usi *line* par *No.* 2 *gun* ke lie andázan 30x ke fásile par dusri *gun peg* laga do.

(iii) Ab *director* ko uthákar thik *No.* 2 *gun* ki *gun peg* ke upar laga do aur *pivot gun* ki *gun peg* par is tarah *lay* karo kih tir 0° ke sámne ho.

(iv) *Director sight* ko 90° ke *angle* tak báin taraf ghumáo aur is *gun* ke lie *direction peg* laga do, jaisa kih (ii) men bayán kia gaya hai.

Ab *No.* 2 *gun* ki *pegen No.* 1 *gun* ki *pegon* ke mutawázi hongi.

2. Jab *gunen position* men a chuken to kárrawái waise hi hogi jaise kih *Section drill—Night firing* (*Section* 15, Sabaq 48 aur 49) men bayán kia gaya hai.

3. Jab *gunen lay* ki ja chuken to *direction* ko *dial* ke zarie aur *elevation* ko *clinometer* ke zarie se qáim rakha játa hai.

SABAQ 87—RAT KE WAQT *GUN*ON KI BADLI.

***Instructor* ke lie *note*.**

Zaruri sámán.—Do ya ziáda *gunen* aur *tripod*, *night firing* ke pure sámán samet.

Sikhlái ka tariqa.—*Gunen position* men *direction* aur *elevation* ke liház se *lay* ki hui hongi.

Badli karne ki kárrawái pure taur par ki jáegi.

Jab kabhi mauqa mile, is sabaq ke mutábiq *position* lene aur badli karne ki kárrawái do alag alag *sectionon* se pure taur par karwái jáe.

Bayán karo :—

1. *Aiming peg* áge hi rahne di jáegi. Badli karne wáli *gun*ke *in-charge* uhdadár ki zimmawári hai kih uski *gun* ke lie *peg* durusti se lagái jáe.

2. *Aiming peg*en áge hi rahne di jáengi.

3. Ab wuh *gun* jis ki badli hone wáli hai hatái jáegi aur badli karne wáli *gun* durusti ke sáth *gun peg* ke zarie se *mount* ki jáegi, *direction* ke lie puráni *aiming peg* par *lay* ki jáegi aur phir iska *dial zero* kia jáega.

4. *Elevation* ko *clinometer* ke zarie se aur *direction* ko *dial* ke zarie se qáim rakha játa hai.

5. Iske bád *range card* aur *fire control* ki tamám tafsil badli karne wále *unit* ko di jáegi.

SABAQ 88—RÁT KE WAQT *FIXED LINE* PAR *LAY* KARNA—JABKIH DIN KE WAQT *RECONNAISSANCE* NA KIA GAYA HO.

***Instructor* ke lie *note*.**

Zaruri sámán.—***Gun, tripod, clinometer*** aur pura ***night firing*** ka sámán.

1. Bayán karo aur namuna dikháo.

(a) Jahán *fixed line* giráni ho us jagah se *gun*on ke rukh men raushni dikhái jáegi.

Yih *position* hifázat ka khayál rakhte hue chuni jáegi.

(b) (i) *Range finder* se raushni ka *range* lo.

(ii) *Sight* ko is *range* par rakhte hue *gun* ko raushni par *lay* karo. Aisa karte waqt sháyad bijli ke *torch* ki raushni dálne ki zarurat pare. *Dial* ko *zero* karo.

(iii) *Night sight* lagáo aur *line of sight* ko raushni se dobára miláo.

(iv) *Clinometer* ke zarie *gun* ka *elevation check* karo.

(v) *Aiming peg* lagáo.

(vi) Junhi kih raushni dikháne wála ádmi *line of fire* se nikal áe, *gun* ko *load* karo.

2. Khule maidán men mashq karáo. Shuru men din ke waqt mashq karáni bihtar hogi, magar junhi sikhlái páne wále qábil ho jáen, rát ke waqt mashq karáni cháhie.

SECTION 26—*FIRE DIRECTION* AUR *CONTROL CHART*.

1. *Programme* ke mutábiq *fire* karne ka kám karáne ke wáste, jabkih *fire* ek ya ek se ziáda *target*on par aur mukhtalif waqton par karna ho, to yih ám taur par bihtar hoga kih *fire* ki rahnumái karne aur us par qábu rakhne ke lie *chart* die jáen. Yih kám ám taur par naqshe ki madad se ya rát ke waqt *fire* karne ke wáste karna hoga, misál ke taur par, din nikalne se thora pahle faujon ke hamlon ko *covering fire* dete waqt, diq karne wála *fire* aur *counter preparation* (yane dushman ke hamle ki taiyári ke khiláf kárrawái karte waqt) wagaira.

2. *Support platoon commander*, apne *section*on ko alag alag kám bántne ke wáste, *FIRE DIRECTION CHART* taiyár karega. Iska ek munásib naqsha safha 94 par dikháya gaya hai.

3. *Section commander* har ek *gun* ke lie ek *FIRE CONTROL CHART* taiyár karta hai. Har ek *gun* par ek uhdadár is *chart* men likhi báton ke mutábiq *gun number*on ko kám karne ka hukm deta hai. Yih *chart fire direction chart* (agar mile hon) aur paimáish se malum ki hui báton se taiyár kie játe hain.

Chart men *switch*on, waqt, *fire* ki raftár aur *elevation* aur *traverse* ki miqdár ki thik tafsil har ek *target* ke lie di játi hai. Ek munásib naqsha safha 95 par dikháya gaya hai.

Din ke waqt agar *indirect fire* karna ho to aksar yih fáidamand hoga kih *gun*on par istemál karne ke lie ek sáda sa *chart* taiyár kar lia jáe.

SABAQ 89—*CHART*ON KA TAIYÁR KARNA.

Sikhlái ka tariqa.—*Officer*on ko donon qism ke *chart* banáne ki sikhlái di jáegi.

Uhdadár sirf *fire control chart* hi ka banána sikhenge. Unko *fire direction chart* dia jáega aur us se *fire control chart* taiyár karne ki sikhlái di jáegi.

1. BAYÁN KARO.

Kisi *target* ka *angle of deviation* wuh *angle* hai jahán tak kih *gun* ko us *target* par durust jagah par láne ke wáste, *zero* se ghumáya jáe.

2. Yád rakhna cháhie kih agar zarurat ho to mausim ke ám hálát ke lie jo *Q. A.* nikála gaya ho aur *fire* karne ke waqt ke mausimi hálát ke liház se durust kia hua *Q. A.* donon *fire control chart* men darj kie játe hain.

Shakl 24.

Fire Direction Chart.

Hawála...... Naqsha...... **Tárikh..............**

Unit aur kám.	Jagah.	Khás kám.	Waqt. Se	Waqt. tak.	*Fire* ki raftár.	Kaifiyat.
No. 1 *Section.* (*Supporting gunen*).	Rajakheri Basti ke *South* ráston ke milne ki jagah (544666).	1. Bara bágicha *North West* kona (4344) se *West* ráste ke sáth 50x tak.	*Zero*	Z+4	*Rapid.*	
	Gunen gehun ke khet ke *right* kináre (047256) par *lay* ki hui hain.	2. Ráston ke milne ki jagah (433442) se *South West* 50x tak.	Z+10	Z+14	*Normal.*	
		Fixed line ráston ke milne ki jagah (435450) se *East* 50x tak.	*S. D. F.* Lál, Hara, Lál.		2 *minute. Rapid.* 3 *minute. Normal.*	

Sd/- F. J. Blank, *Capt.*,
Commanding, Support Platoon

Shakl 25.

Fire Control Chart

No. 1 *Section*—Kám..............................

Zero line ka *bearing*..............................

No. 1 *Gun.* *Gun* ka *incharge* uhdadár—

Khás kám.	Ghari ka waqt. Se	Ghari ka waqt. Tak	*Zero* ka waqt. Se	*Zero* ka waqt. Tak	Angle of *deviation.*	Mamuli *Q. A.*	*Corrected Q.A.*	*Traverse Rt. & left.*	Bagali hawa ka haq.	*Fire* ki raftár.	Kaifiyat.
1.			*Zero*	Z+4	R 12°40′	2° 50′ *Lift* 25′.		2 *Tap.*		*Rapid.*	Bári bári se har ek *elevation* par do do *minute fire* karo.
2.			Z+10	Z+14	L6° 40′	3° 45′ *Lift* 30′.		2 *Tap.*		*Normal.*	Har *elevation* par bári bári se ek ek *minute fire* karo.
Fixed line.	*S. D. F.* LÁL HARA LÁL				*Zero* .	4° 50′ *Lift* 35′		2 *Tap.*		2 *min. Rapid-* 3 *min. Normal.*	Har *elevation* par pánch pánch *minute fire* karo.

Note.—*Q. A.* ke sáth agar *DEP* ka lafz na lagáya jáe to hamesha *elevation* samajhna chahie.

Tárikh.................... Dastkhat................

Section Commander.

SECTION 27—ÁLON KE ISTEMÂL KI SIKHLÁI.

1. ÁM KAIFIYAT.

(i) *Support platoon* ke tamám *rank*on ko *clinometer, bar-foresight, aiming post, direction dial, elevating wheel* aur *night sight* ke istemál men khub qábil hona cháhie.

(ii) *Officer*on aur uhdadáron ko *slide rule* ke kám men qábil hona cháhie. *Officer*on aur pakke uhdadáron ko *director* ke istemál ki bhi sikhlái di jáegi.

(iii) Iske aláwa, tamám *officer*on aur uhdadáron ko is qábil hona cháhie kih wuh yih yaqin kar saken kih *clinometer* durust hai. Isi tarah un *officer*on aur uhdadáron ko jin ko *director* ke istemál ki sikhlái di gai ho, is qábil hona cháhie kih ále ko d[r]usti ke lie *test* kar saken.

In *test*on ki tafsil niche likhe hue sabaqon men di gai hai.

2. SIKHLÁI KA TARIQA AUR TARTIB.

(i) Mukhtalif álon ka bayán kia jáe aur unke istemál ka namuna dikháya jáe.

(ii) Jis ádmi ka jis ále se taalluq ho, usko usi ki mashq karái jáe.

SABAQ 90—*DIRECTOR, No.* 4, *MARK* II.

(Taswir V aur VI.)

***Instructor* ke lie *note*.**

Zaruri sámán.—Kuchh *director*.

1. BAYÁN KARO AUR NAMUNA DIKHÁO.

Telescope ko *focus* karna.

Pointer.

Director par bana hua *degree scale*.

Clinometer level aur *elevating gear*.

Degree scale plate.

Index plate ko lagákar kasne ka tariqa aur *clamping screw* ke kám karne ka tariqa.

Stand par lage hue *spirit level* ka istemál.

Base plate men laga hua kánta.

2. Bayán karo.—*Director* in chizon se milkar banta hai :—

Box men laga hua *telescope, vertical pointer* samet. *Telescope eyepiece* ke zarie se *focus* kia ja sakta hai.

Box ke báin taraf *clinometer level* laga hota hai iske yih hisse hote hain :—

Ek *bubble arm, degree scale* aur *micrometer head*, jin par pánch pánch *minute* ke nishán bane hote hain. *Degree scale* ka upar ka ádha hissa aur upar ka *drum* yih donon *elevation* ke lie hote hain ; aur *degree scale* ka nichla ádha hissa aur nichla *drum* yih donon *depression* ke lie hote hain.

Niche ki taraf ek *slider* aur *spring* laga hota hai, jin ke zarie *director* ko *director stand* men lagáya játa hai. *Director stand* ki tin qabzedár tángen hoti hain, aur tángon ke bich men niche ki taraf ek kánta laga hota hai. Kánte men koi wazandár chiz latkái ja sakti hai jis se *director stand* ki sidh malum ho sake. Tángen ek gol *plate* men, jis men ek *clamping socket* hota hai, lagi hoti hain.

Clamping socket ghumáya ja sakta hai aur us men ek *clamping screw* laga hota hai, jis ke zarie *base* men *clamping socket* kasa játa hai. *Degree scale plate, clamping socket* ki upar ki satah men laga hota hai. Us par dahne báen donon taraf R. aur L. O. se 180 tak *degree*on ke nishán bane hote hain.

Iske upar *index plate* laga hota hai, jis ke báhar ke kináre par ek tir ka nishán bana hota hai. Is *plate* par ek dandánedár *nut* laga hota hai jis ke zarie *index plate* ko *degree scale plate* men kaste hain, aur ek *spirit level* laga hota hai jis ke zarie *director stand* sidha khara lagáya játa hai aur ek *compass* laga hota hai.

Carrier jis men *director slider* laga hota hai, *slow motion elevating gear* ke zarie *elevate* ya *depress* kia ja sakta hai.

Carrier aur *slider* par jo *spring* lage hote hain wuh is wáste hote hain kih *carrier* aur *slider* ek dusre men khub jamkar baithen aur hilne julne na páen.

3. *Director* lagáne ka namuna dikháo.

Director aur *director stand* ko unke *case*on men se nikálo phir *director* ke pende ko *carrier* men thik thik lagáo. Tángon ko phailákar is tarah zamin par jama do kih *director* munásib uncháí par rahe. Tajribe se malum hoga kih ek ghutna tek-kar baithne ki *position* sab se ziáda munásib hai ya mumkin hai kih kabhi kabhi is se niche ki *position* ikhtiyár karni pare. Tángon ko achchhi tarah se zamin men dhansa do. Apna itminán kar lo kih *degree scale plate* qarib qarib hamwár hai.

4. *Angle of sight* lene ka namuna dikháo.

Telescope ko *focus* karo aur *clamping screw* ko dhila karke *elevating gear* aur *clamping socket* ke dandánedár hisse ke zarie *pointer* ki nok ko nishán par *lay* karo.

Ab us *milled head* se kám lete hue jo *depression micrometer head* ke niche hai *bubble* ko thik bich men le áo aur *degree scale* par *micrometer head*on se kám lekar *angle of sight* parho. Jab *bubble* ek dafa *centre* men láya ja chuke to phir *angle of sight* kisi bhi munásib waqt par parha ja sakta hai. *Angle of sight* ke *minute* sab se qarib ke pure adad men parhe jáen.

Jab kám khatm ho chuke to tir ke nishán *zero* par laga die jaen.

5. Bayán karo kih do nishánon ke darmiyán ka bagali *angle* kaise nápa jáega.

Index plate ke *pointer* ko *degree scale* ke *zero* wále nishán ke sámne láo. *Clamping nut* ko kas do. Phir *elevating gear* aur *clamping socket* ke dandánedár hisse se kám lete hue *pointer* ko donon nishánon men se pahle nishán ki sidh men lagáo aur *clamping screw* kas do.

Ab *clamping nut* ko dhila karke *pointer* ko dusre nishán par laga do.

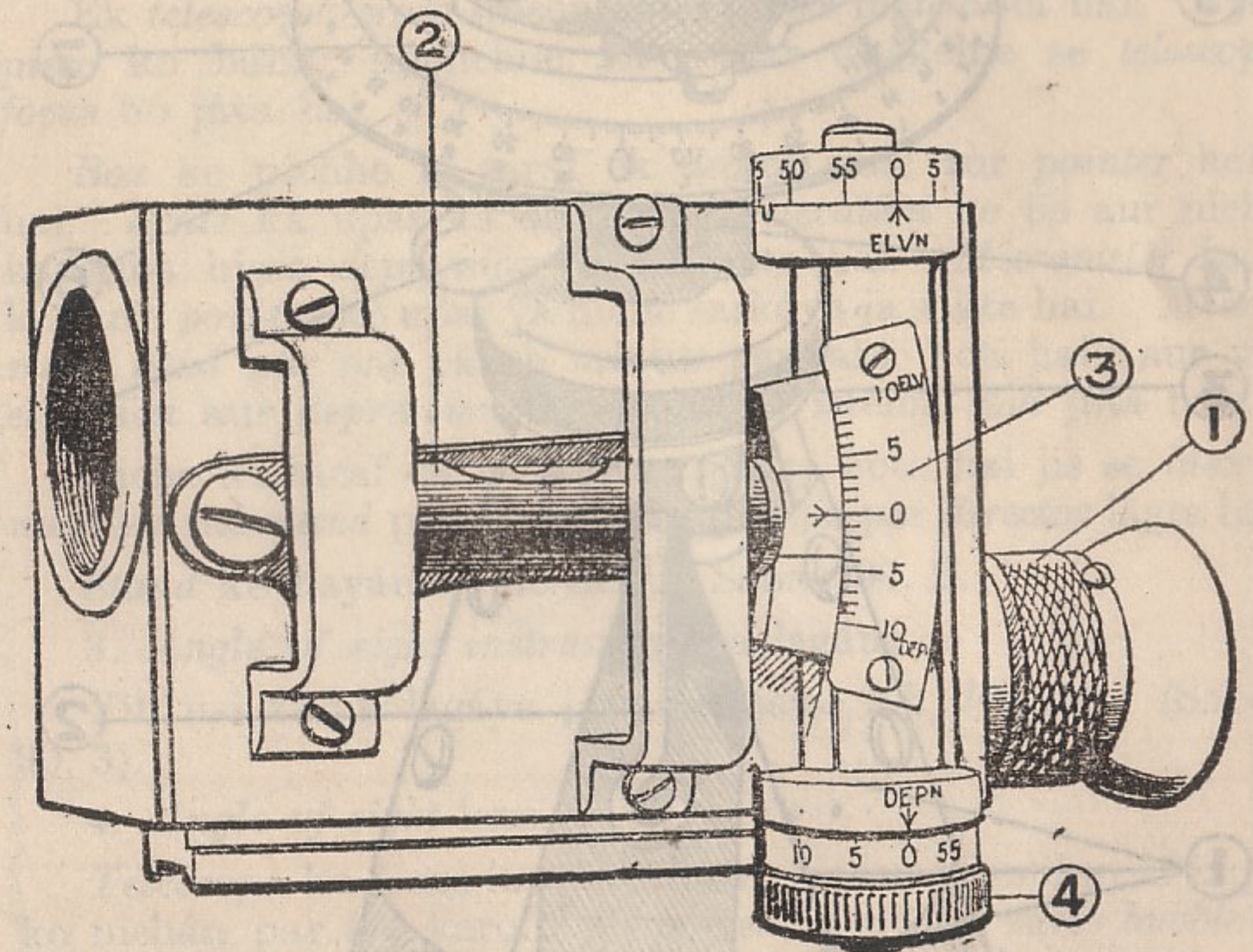
Ab *degree scale* par dahne ya báen ko *degree* aur *minute* nazdik se nazdik ke das *minute* tak parhe jáen. Is bát ka yaqin karo kih *index plate* ko sarkáte waqt *degree scale plate* apni jagah se khisakne na páe. Jab kabhi *index plate* ko

sarkána ho to *director* ko nahin balkih *carrier bracket* ko pakarkar sarkáo.

Director stand ko uske *case* men dálne se pahle uske *slide* ko pare rukh kar lo. *Compass* ko apni jagah par kas do aur *index plate* ke *pointer* ko *zero* par laga do.

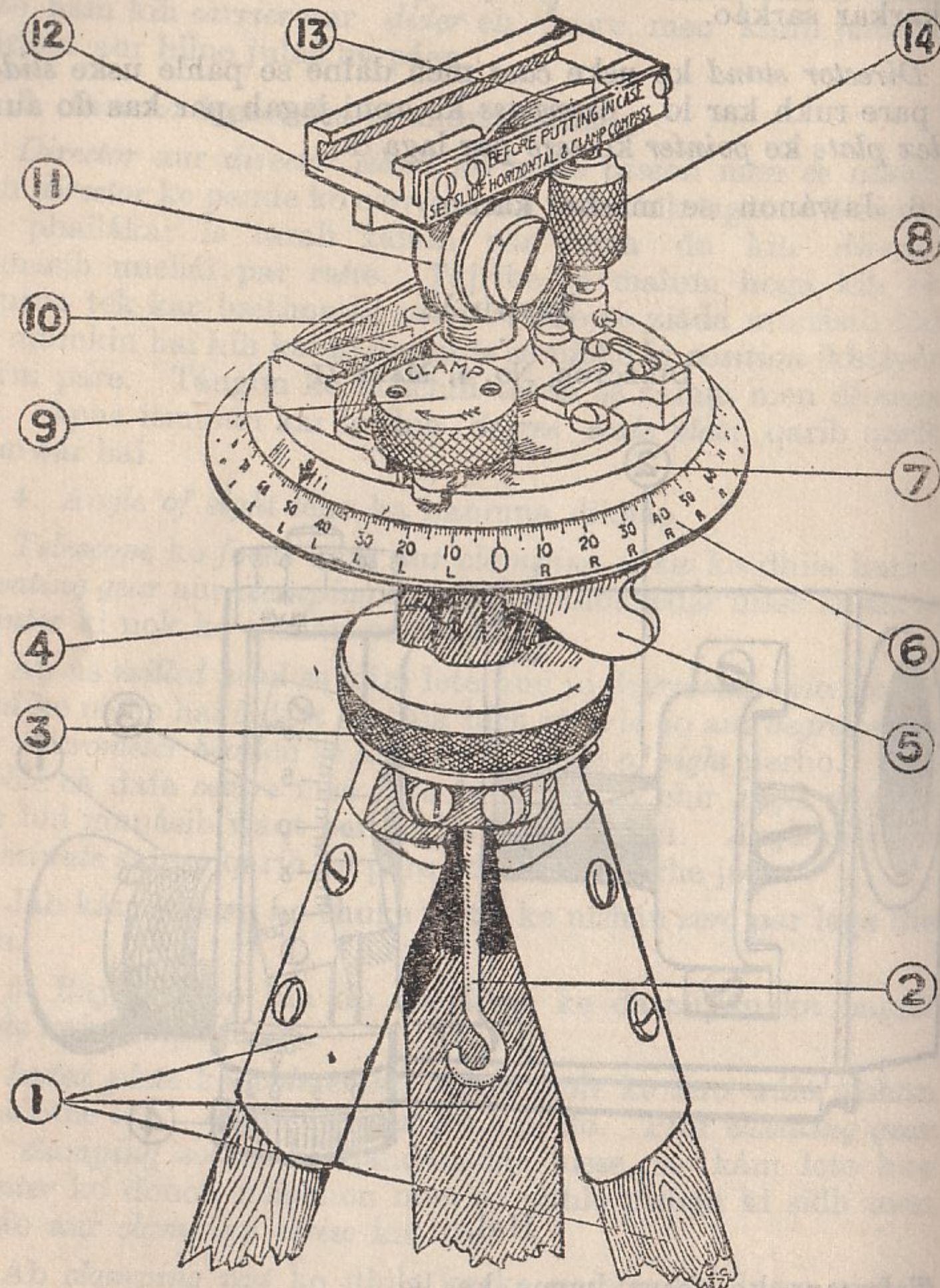
6. Jawánon se mashq karáo.

Taswir V.

DIRECTOR, No. 4, MARK II

Hal.

1. *Telescope* ko *focus* karne ke lie.
2. *Clinometer level.*
3. *Angle of sight degree scale.*
4. *Bubble* ko *level* karne ke lie.

Taswir VI.

STAND DIRECTOR, NO. 4, MARK II

Hal.

1. Tángen.
2. Kánta.
3. *Base plate.*
4. *Clamping socket.*
5. *Clamping screw.*
6. *Degree scale plate.*
7. *Index plate.*
8. *Spirit level.*
9. *Clamping nut.*
10. *Magnetic compass.*
11. *Carrier bracket.*
12. *Carrier.*
13. *Side spring.*
14. *Elevating gear.*

SABAQ 91—*ANGLE OF SIGHT INSTRUMENT.*

(Taswir VII).

***Instructor* ke lie *note*.**

Záruri sámán.—*Angle of Sight Instrument.*

1. BAYÁN KARO AUR NAMUNA DIKHÁO.—*Telescope* ko *focus* karne ke lie :—

Cross lineen.

Instrument par *degree scale.*

Bubble aur iska *level* karna.

2. Bayán.—*Instrument* in chizon se milkar banta hai :—

Ek *telescope, cross line*on samet, *box* men hota hai. *Eye-piece* ko báhar khenchne ya andar dhakelne se *telescope focus* ho játa hai.

Box ke pichhe ki taraf ek *degree scale* aur *pointer* hota hai. *Scale* ka upar ka ádha hissa *elevation* ke lie aur niche ka ádha hissa *depression* ke lie hota hai. *Micrometer head* ke zarie *pointer* ko upar ya niche sarkáya ja sakta hai. *Micrometer head* par har pánch *minute* par lakir hoti hai ; aur yih *elevation* aur *depression* donon ke lie istemál kia játa hai.

Niche ki taraf ek *slider* aur *spring* hota hai jis se *instrument* ko usi *stand* par lagáya játa hai jis par *director* lagta hai.

Stand ke bayán ke lie dekho Sabaq 90, 2.

3. *Angle of sight instrument* ka lagána.

Yih usi tarah lagáya játa hai jaise kih *director*. (Sabaq 90, 3).

4. *Angle of sight* lena.

Telescope ko *focus* karo aur *cross line*on ke milne ki jagah ko nishán par *lay* karo. *Micrometer head* ke zarie *bubble* ke aks ko *field of view* ke bich aisi jagah láo kih *cross* ki pari *line bubble* ke bich ki jagah ko káte.

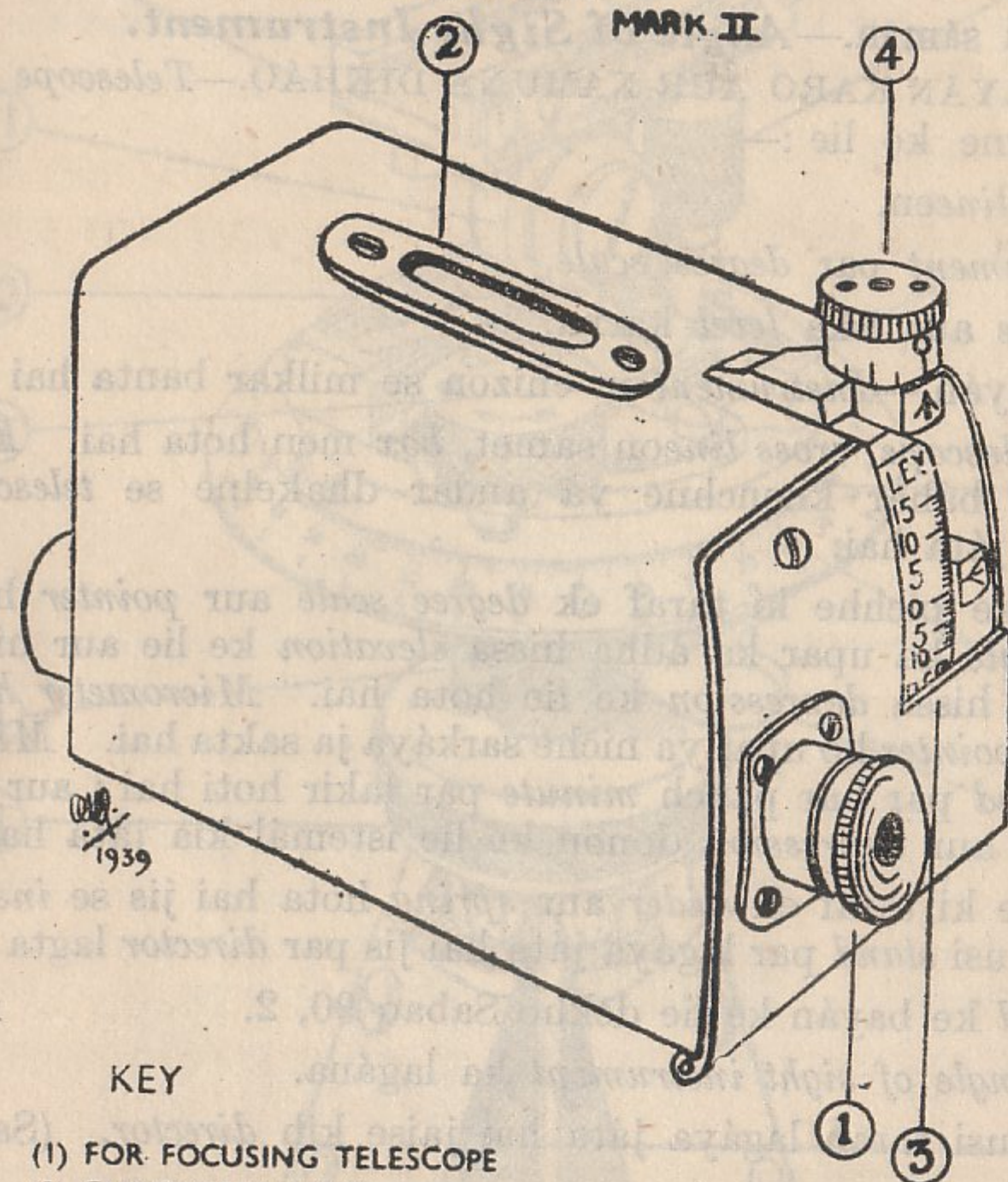
Degree scale aur *micrometer head* par se *angle of sight* parh lo. Jab ek dafa *bubble* durust jagah láya ja chuke to phir *angle of sight* bád men kisi bhi munásib waqt par parha ja sakta hai. *Angle of sight* ke *minute* sab se qarib ke pure adad men parhe jáen.

Key=Hal.

Plate VII=Taswir VII.

For focusing telescope=*Telescope* ko *focus* karne ke lie.

For leveling bubble=*Bubble* ko *level* karne ke lie.

Jab kám khatm ho chuke to tir ke nishán *zero* par laga die jáen.

5. Do nishánon ke darmiyán ka bagali *angle* nápna.

Yih usi tarah nápa játa hai jaise kih *director* se—Dekho Sabaq 90, 5.

6. Jawánon se mashq karáo.

SABAQ 92—*ANGLE OF SIGHT* KE LIE *DIRECTOR* YA *ANGLE OF SIGHT INSTRUMENT* KO *TEST* KARNA.

***Instructor* ke lie *note*.**

Zaruri sámán.—Kuchh *director* ya *angle of sight instrument*.

1. Ek aisi *position* chuno jahán do diwáren ya sidhe khare *post* ek dusre se 200 gaz ke fásile par hon aur jahán tak mumkin ho wuh diwáren ya *post* hamwár zamin par hon.

2. Apne ále ko ek diwár (A) ke pás le jáo, agar mumkin ho ek ghar ke kone ke pás. Agar No. 4 *Mk.* II *director* ya *angle of sight instrument test* karna ho to *degree* aur *minute scale* ko *zero* par *set* karo. (Yih nai qism ke *director* ke lie zaruri nahin hai). Ab ále se dusri diwár par shist lo aur *elevating gear* ke zarie *bubble* ko *centre* men láo.

Telescope se dekho aur ek ádmi se kaho kih jidhar is ále ki shist hai udhar jáe aur wahán lakir lagáe aur (B) likhe. Jidhar tum khare ho us diwár par ále ke *object glass* ki unchái ke barábar ek lakir (A) lagáo.

3. Ále ko dusri diwár (B) ke upar le jáo aur *object glass* ko is diwár ke nazdik *point* (B) ke barábar rakho. *No.* 4 *Mk.* II *director* ya *angle of sight instrument* ho to *degree scale zero* par rakho. *Bubble* ko *elevating gear* ke zarie *centre* men láo.

Agar ále ki ab shist nishán (A) par milti hai to yih durust hai.

4. Agar ek se ziáda ále *test* karne hon to hamwár satah hásil karni zaruri hai.

Agar upar 3 ke mutábiq ále ki shist *mark* (A) par mil gai thi to (B) se (A) ki *line* hamwár satah hai aur yih *line* dusre álon ko *test* karne ke lie istemál ho sakti hai.

Agar ále ki shist jab kih uska *bubble centre* men ho (A) par nahin milti to ek ádmi ko bhejo kih wuh shist ki jagah nishán (C) lagáe.

Ab pahli diwár par nishán (D) lagáo jo kih (A) aur (C) ke ain bich men hoga. Yih nishán (D) nishán (B) ke sáth milkar hamwár satah banáega. Durusti ka yaqin karne ke lie bihtar hai kih ále ko (D) ke pás rakho aur wahán se (B) par phir *check* karo. Jab hamwár satah mil jáe to dusre ále is par *check* aur durust kie ja sakte hain.

5. Hamwár satah hásil karne ke bád is par ála *test* karne ka tariqa :—

No. 4 Mk. II director ya *angle of sight instrument* ho to *degree* aur *minute scale zero* par laga do. (Aisa karna nae namune ke *director* ke lie zaruri nahin). *Object glass* ko *horizontal line* ke ek kináre par rakho aur *elevating gear* ke zarie hamwár satah ke dusre kináre ki lakir par shist lagáo. Ab *bubble centre* men hona cháhie. Agar aisa na ho to *micrometer head* ko us waqt tak ghumáo jab tak aisa na ho jáe aur galati ko dekh lo.

No. 4 Mk. II se nae namune ke *director* ke lie sirf sámne wále nishán hi par shist lena zaruri hota hai aur yih dekhna parta hai kih *bubble centre* men hai. Agar *bubble centre* men na ho to *telescope* ko upar ya niche karte jáo jab tak *bubble centre* men na a jáe aur phir *eyepiece* men se galati ko dekh lo.

Note.—Agar durusti ki zarurat ho to *armourer* se karái jáe.

SABAQ 93—*CLINOMETER, VICKERS* ·303-*INCH MARK* I.

(Taswir VIII.)

Instructor* ke lie *note.

Zaruri sámán.—*Clinometer, gun* aur *tripod.*

1. Bayán ke sáth namuna dikháo.—

Gun ke upar rakhkar.

Elevation ya *depression* ke wáste *set* karna.

2. Bayán

Is ále men ek "*Cradle*" (A) hai. Is ke upar ki satah aisi kati hui hai kih wuh ek *circle* ki *arc* banáti hai jis men *arc* (N) phisal sakti hai.

Is par ek taraf *zero* se lekar 20 *degree* tak (C) *elevation* aur *depression* khoda gaya hai aur yih *degreeán arc* par khude hue tir (D) se parhi játi hain. *Elevation* aur *depression* ki lakiron men kála rang bhara hua hai aur har 5 *degree* ke bád *degree* ka *number* likha hua hai jin ke sáth harf E aur D tartibwár likha hua hai.

Ek *worm spindle, cradle* men do *bearing*on men lagáya gaya hai. Ek sira (E) *pivot* par hai, tákih *degree* tezi se lagái jáe, is *worm spindle* ke dusre sire (F) ko dabáne se *arc* ke *gear* se *worm* alag ho játa hai.

Is maqsad ke lie kih *worm spindle* aur *arc* ápas men baith jáen, ek *spring* lagáya gaya hai. *Worm spindle* par do *micrometer collar fix* kie gae hain ; ek (G) *depression* ke *minute*on ko parhne ke lie aur dusra (H) *elevation* ke *minute*on ko parhne ke lie.

Micrometer collar pánch pánch *minute*on ki lakiron se taqsim kie gae hain aur har 10 *minute* ki lakir par hindase likhe hue hain aur *degree scale* ke mutábiq range hue hain. *Micrometer collar*on ke upar hindason ke niche E aur D likhe hue hain jo kih *elevation* aur *depression* ko záhir karte hain.

Worm spindle ke ek sire par *milled head* (J) mazbuti se lagáya gaya hai. *Milled head* ka ek pura ghumáo ek *degree* ke barábar hai.

Arc (N) ki shakl aisi banái gai hai kih wuh *worm spindle* men phisal sake. Iski nichli satah par dánte hain jin men *worm* baithta hai. Is ke sáth do pechon se *degree scale* ke lie *adjustable reader* (K) laga hua hai. Is ki upar ki satah par *spirit level* (L) laga hua hai.

Ále ke pichhli taraf ek *bracket* laga hua hai jokih us *bracket* men lagáya játa hai jo *gun* par hai.

3. *Clinometer* ko *test* karna.

(i) Ek aisa *director* ya *angle of sight instrument* jo kih *test* aur durust kia ja chuka ho, *gun* ki unchái par rakhkar do ya ziáda nishánon ka *angle of sight* náp lo.

(ii) *Gun* par *sight zero* lagákar in men se kisi nishán par shist le lo, ab *clinometer gun* par rakho aur *bubble* ko *centre* men le áo. Ab dekho kih *clinometer* ka *reading* aur *director* ke lie *angle of sight* men kuchh farq hai ya nahin. Agar farq ho to *clinometer* ki galati hai.

(iii) Isi tariqe ke mutábiq ek dusre nishán par bhi *test* karo. Donon hálaton men farq ek hi hona cháhie.

4. Agar dusri *gun* ke *clinometer* ki bábat pata ho kih wuh durust hai to bajáe *director* ke us *gun* aur us ke *clinometer* ko nishánon ka durust *angle of sight* lene ke lie istemál kia ja sakta hai.

Har ek *clinometer* us ki apni *gun* ke lie *test* hona cháhie.

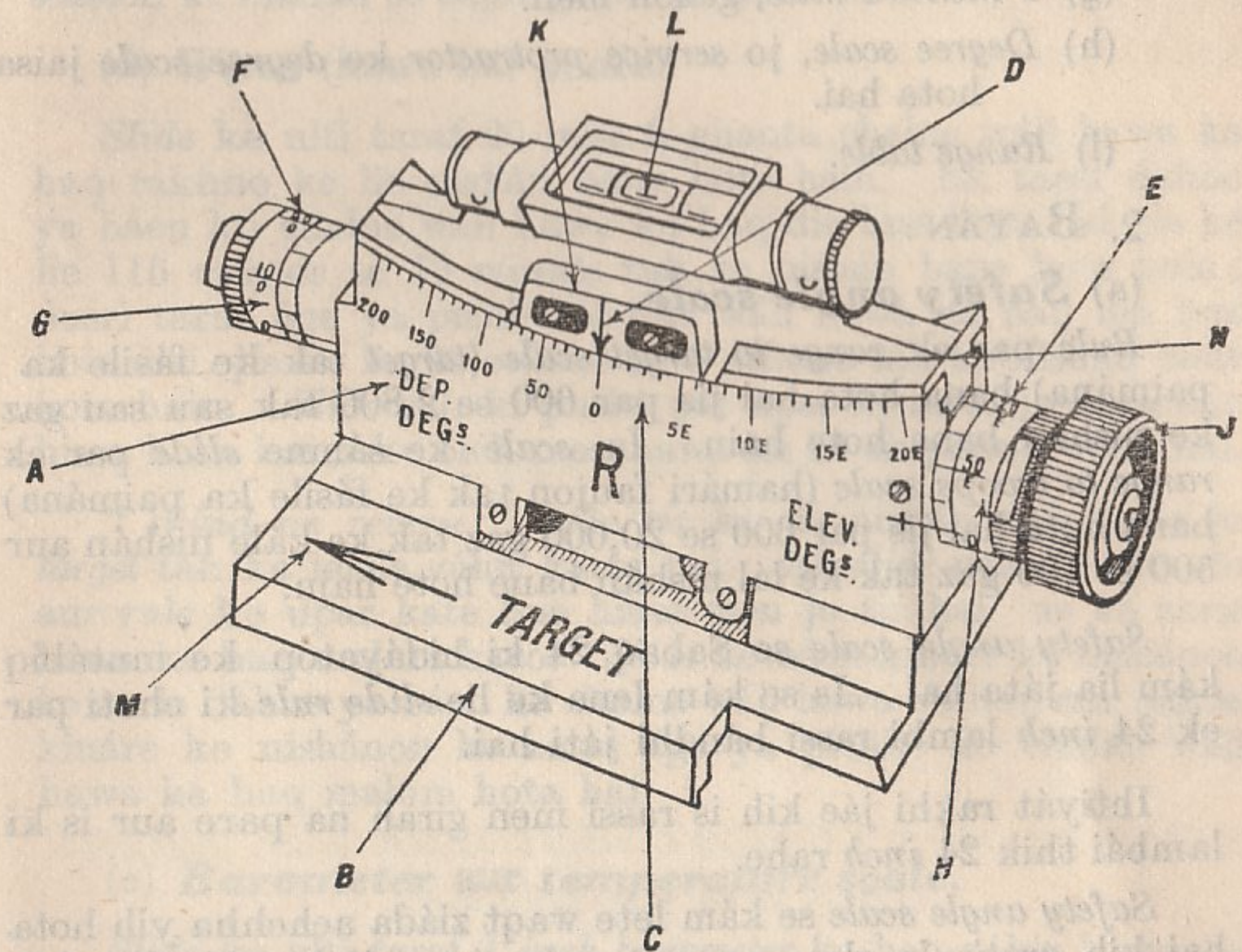
Note.—Minute drum **ko ghumáte waqt ákhir men hamesha báen ko chakkar dena cháhie, yane ghari ki chál ke barkhiláf.**

Jab *clinometer* durust kia ja chuke to is ko do ya ziáda nishánon par phir *test* karo.

5. *CLINOMETER* KO DURUST KARNA :—

Malum ki hui galati *clinometer* par lagáo. *Spanner* ke zarie " *nuts, securing micrometer collar* " ko dhila karo. Ab *scale zero* par lagáo aur phir kas do. Agar galati bari ho to sháyad *degree reader* ko dobára *set* karne ki zarurat hogi. Iske lie donon *securing screw* on ko dhila karke *reader* ko dahne ya báen (jaisi bhi zarurat ho) harakat di játi hai aur phir kas dia játa hai.

***Note.*—Durusti sirf *armourer* hi se karái jáe.**

CLINOMETER, VICKERS ·303-IN. M. G. MARK I (MODIFIED).

Taswir VIII.

SABAQ. 94—*RULE SLIDE M. G. MARK* I.

Instructor **ke lie *note*.**

Zaruri sámán.—*Slide rule*.

1. NAMUNE KE SÁTH BAYÁN KARO.

Niche likhe hue *scale slide rule* par khude hue hain :—

(a) *Safety angle scale.*

(b) *Degree scale.*

(c) *V. I. and H. E. scale.*

(d) *Wind* (hawa ka) *scale.*

(e) *Barometer and temperature scale.*

(f) 1 *inch*=20,000 *scale* gazon men.

(g) 1 *inch*=1 *mile*, gazon men.

(h) *Degree scale*, jo *service protractor* ke *degree scale* jaisa hota hai.

(i) *Range table.*

2. BAYÁN :—

(a) ***Safety angle scale.***

Rule par ek *range to target scale* (*target* tak ke fásile ka paimána) bana hota hai jis par 600 se 2,800 tak sau sau gaz ke nishán bane hote hain. Is *scale* ke sámne *slide* par ek *range to troops scale* (hamári faujon tak ke fásile ka paimána) bana hota hai jis par 600 se 20,000 gaz tak ke kále nishán aur 500 se 100 gaz tak ke lál nishán bane hote hain.

Safety angle scale se Sabaq 24 ki hidáyaton ke mutábiq kám lia játa hai. Is se kám lene ke lie *slide rule* ki choti par ek 24 *inch* lambi rassi bándhi játi hai.

Ihtiyát rakhi jáe kih is rassi men girah na pare aur is ki lambái thik 24 *inch* rahe.

Safety angle scale se kám lete waqt ziáda achchha yih hota hai kih *graticule glass* ya *monocular* istemál kia jáe kionkih agar rassi thik 24 *inch* lambi na ho to bari galati ho játi hai.

(b) ***Degree scale.***

Range to target aur *range to troops scale*on ke sáth (dekho Sabaq 68) kám dene ke aláwa yih *scale* bagali *angle* nápne ke lie bhi istemál kia ja sakta hai, jis waqt kih *rule* ánkh se 24 *inch* ke fásile par ho. *Slide* ka jitna hissa *rule* ke upar nikla hua ho us se zamin par wuh *degree* aur *minute* záhir honge, jo tir ke sámne *slide* ke upar ke dahne kone par nazar áte hain.

(c) ***V. I. and H. E. scale.***

V. I. scale par 300 se 10 tak das das gaz ke nishán bane hote hain. Is *scale* ke sáth ek *H. E. scale* bhi hota hai jis par 3,000 se 100 tak sau sau gaz ke nishán bane hote hain. Is ke aláwa ek *degree scale* hota hai jis par *zero degree* se das *degree* tak ke nishán bane hote hain.

Slide par ek tir bana hota hai, jis ke zarie *V. I.* aur *H. E. scale*on ki madad se *angle* parhe ja sakte hain.

(d) ***Wind*** **(hawa ka)** ***scale.***

Slide ke ulti taraf 20 *mile* fi ghanta chalne wáli hawa ka haq rakhne ke lie nishán bane hote hain. Ek taraf dahne ya báen ko chalne wáli hawa ka haq dia hua hota hai, jis ke lie 115 *minute* se 10 *minute* tak ke nishán bane hote hain ; dusri taraf áge ya pichhe chalne wáli hawa ka haq dia hua hota hai, jis ke lie 90 *minute* se 5 *minute* tak ke nishán bane hote hain. *Slide rule* ki pusht par upar ki taraf jo kata hua hissa hota hai uske bich men hawa ke lie ek *pointer* hota hai.

" *Wind on reverse* " wále tir ko us nishán par lagáo jo *target* tak ka fásila záhir karta hai. Ab *slide rule* ko ulta do aur *rule* ke upar kate hue hisse men jo tir hai us ke żarie hawa ka haq malum karo. *Slide* ke báen kináre ke nishánon ke zarie dahne ya báen ko chalne wáli hawa ka haq aur dahne kináre ke nishánon ke zarie áge ya pichhe ko chalne wáli hawa ka haq malum hota hai.

(e) ***Barometer*** **aur** ***temperature scale.***

Slide ke ulti taraf 1 *inch barometer* ka haq záhir karne ke lie 5 *minute* se 25 *minute* tak ke nishán bane hote hain.

20 *degree temperature* (harárat) ke haq záhir karne ke lie 5 *minute se* 35 *minute* tak ke nishán bhi bane hote hain. *Rule* ki pusht par niche ki taraf kate hue hisse ke bich men ek *pointer* hota hai.

" *Temperature and Bar. on reverse* " wále tir ko us nishán par lagáo jo *target* tak ka fásila záhir karta hai. Ab *slide rule* ulta do aur jo haq malum karna ho *rule* ke nichle hisse ke katáo men jo tir hai uske zarie malum kar lo.

Barometer ke nishán báin taraf aur harárat ke nishán dahni taraf hote hain.

(f) **1/20,000** ***scale.***

Is *scale* par pachás pachás gaz ke nishán bane hote hain. Sau, pánch sau aur hazár gaz wále nishán bare hote hain. Hazár gaz wále nishánon par pure hindase likhe hote hain.

(g) Ek ***inch*** fi ***mile*** wála ***scale.***

Is *scale* par sau sau gaz ke nishán bane hue hote hain, bare nishán hazár hazár gaz záhir karte hain.

(h) ***Degree scale—protractor.***

Dhalwán kináre ke bich men ek *protractor degree scale* hota hai jis par *zero degree* se 90 *degree* tak ke nishán bane hote hain. Is *scale* ko *rule* ke dusre dhalwán kináre ke *zero* ke sáth milákar istemál karte hain.

(i) ***Range table.***

Slide ke pichhli taraf niche batái hui báten *range-table* se naql karke likhi hoti hain :—

Tangent angle, angle of descent, beaten zone aur *cone* ki lambái, *cone* ki bich ki jagah se sab se niche girne wáli goli ka fásila.

3. Jawánon se mashq karáo.

SABAQ 95—RAT KE WAQT SHIST LENA AUR *NIGHT SIGHT*ON KA ISTEMAL.

Instructor ke lie ***note.***

Zaruri sámán.—*Gun* aur *tripod, sights night* aur do *pe*gen.

1. Bayán.

(1) *Foresight* fauládi chádar ka ek chaura *plate* hota hai jis men *sight* lagáne ke lie surákh aur katáo bane hote hain. Yih *plate* ek fauládi *body* par khare rukh laga hota hai jis men ek *spring arm* hota hai. Is *spring arm* ke zarie *foresight* ko *deflection bar foresight* ke *sliding sight* ke *protecting wing*on ke sáth jorte hain.

Nishán par shist lagáne ke lie is men mustatil shakl ka katáo bana hua hai jis ke nichle kináre par ek utha hua *blade* bhi hai jis men ek surákh hai.

(2) *Backsight* ek mustatil shakl ki fauládi chádar ka bana hua hota hai jis men shist lagáne ke lie ek surákh hota hai.

Yih *plate* ek chhote *steel body* ke sáth jura hua hai jis ke sáth *clip spring* bhi laga hua hai jo kih is ko *gun* ke *tangent sight slide* ke sáth lagáta hai.

(3) *Foresight* ke *blade* ke *aperture* ko *backsight* ke surákh ke sáth milákar *direction peg* ke zarie *gun* ko *direction* dia játa hai.

2. *Squad* se mashq karáo.

SIGHTS, NIGHT, V.M.G.

Taswir IX.

GIPD—M308 ArmyIII—19-8-41—25,000.